Unit 1. Basic elements of Access2003.

Lets look at what the basic elements of Access2003 are, the screen, the bars, etc, so as to be able to distinguish them. We will learn what their names are, where they are situated, and what they are used for. We will also learn how to get help in case of not knowing how to go on working. Once we know all of this, we will be in a position to begin creating databases on the following unit.

Opening and closing Access2003.

Lets look at the two basic ways of initiating Access2003.

- From the Start button 

, normally situated at the bottom left corner of the screen. Situate the mouse over the Start button, click, and a menu will unfold. On situating the pointer over Programs, a list of all the programs installed on your computer will appear; look at Microsoft Office, then Microsoft Access, click, and the program will initiate.

- From the Access2003 button on your desktop 
.

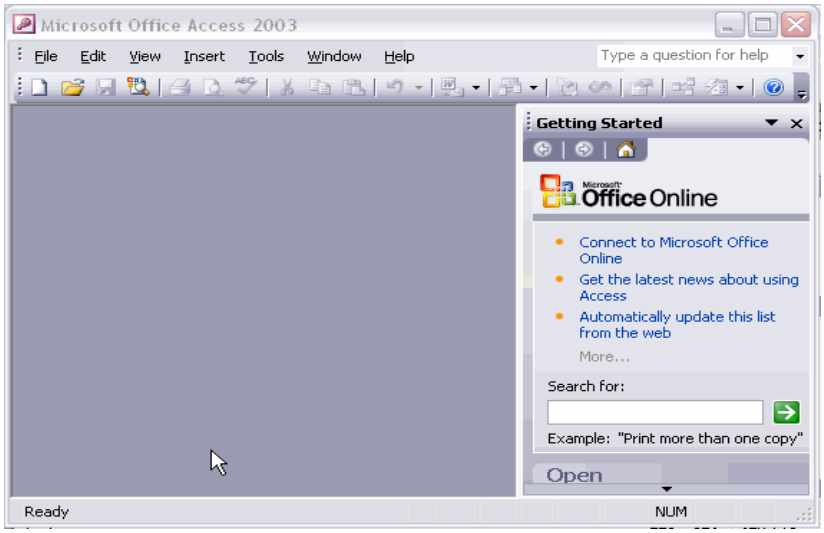
You can now initiate Access2003 to try everything we explain to you.

To close Access2003, you can use any of the following methods:

- Click on the Close button 
- depress the keys ALT+F4 .
- Click on the File menu and then choose Exit option.

The Inicial screen

On initiating Access2003, an opening window will appear (seen below), we will now look at the basic components. This way we will get to know the names of the different elements and it will be easier for us to understand the rest of the course. The next screen we will show you (and generally all of those seen on this course) might not coincide exactly with what you will see on your own computer screen as every user can decide which elements to see at any particular time, as we will see further on.



The bars.

- The title bar.

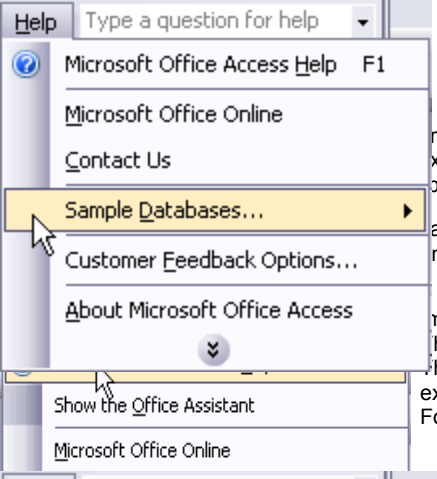


The title bar contains the name of the program. On the extreme right are the buttons to minimize, maximize/restore and close.

- The menu bar.



The menu bar contains all Access2003 commands, grouped in drop down menus. By clicking on Insert for example, we will see the related operations with the different elements that can be inserted.
All operations can be executed from these menus. But the more regular things are executed more quickly from the tool bar that we

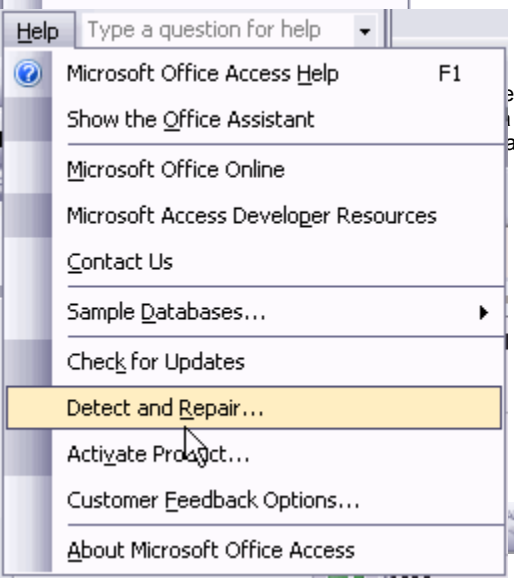


rlined letter, this means that we can access the option directly by pressing simultaneously the Alt key and xample, Alt+F opens File option.
ar has an "intelligent" behaviour, which basically consists of showing the most important and most options

ant more information on "intelligent" behaviour" of the drop down menus clic here

m the menu bar contain three basic elements:

mmediate commands.
hey are executed immediately on clic.
hey are recognised because to the right side of, either nothing appears or a combination of keys to use to execute it will appear.
For example, in the Help menu, press F1 to enter into Microsoft Office Access Help.



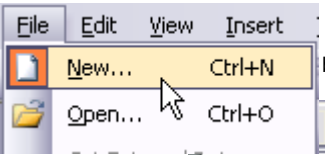
nu.
new menu along side with more options to choose from.
a triangle to its right as in the Help menu, Sample Databases...

Option with a dialogue box.
By clicking on this option a dialogue box appears where we are asked for more information, and has buttons to accept or cancel the option.
Easily recognised because the name ends with three dots.
For example in the Help menu, Detect and Repair...



The toolbars contain buttons with which we can immediately access the most habitual commands, like Save , Open , Print , etc.

There are options that are unavailable at certain moments. Easily recognised as they will have a toned down colour.
The bar we showed you is the database, more toolbars exist for example the task pane (this occupies the right half of the sceen), these are accessible according to the screen we are on as we will see further in the course, including learning how to define our own bars.



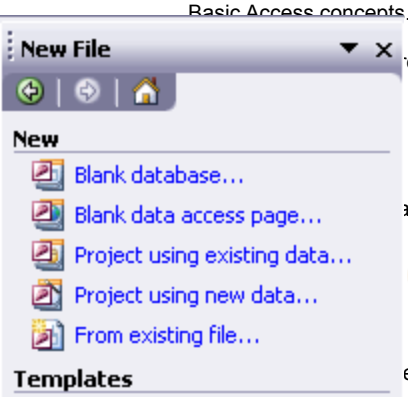
bar.



The status bar can be found at the bottom of the screen, and contains indications about the state of the application, it provides varied information according to the screen that we are on at the time.

Unit 2. Create, open and close a Database (I)

Basic Access concepts.



evise basic database concepts or want to learn the Access2003 managing objects read here .



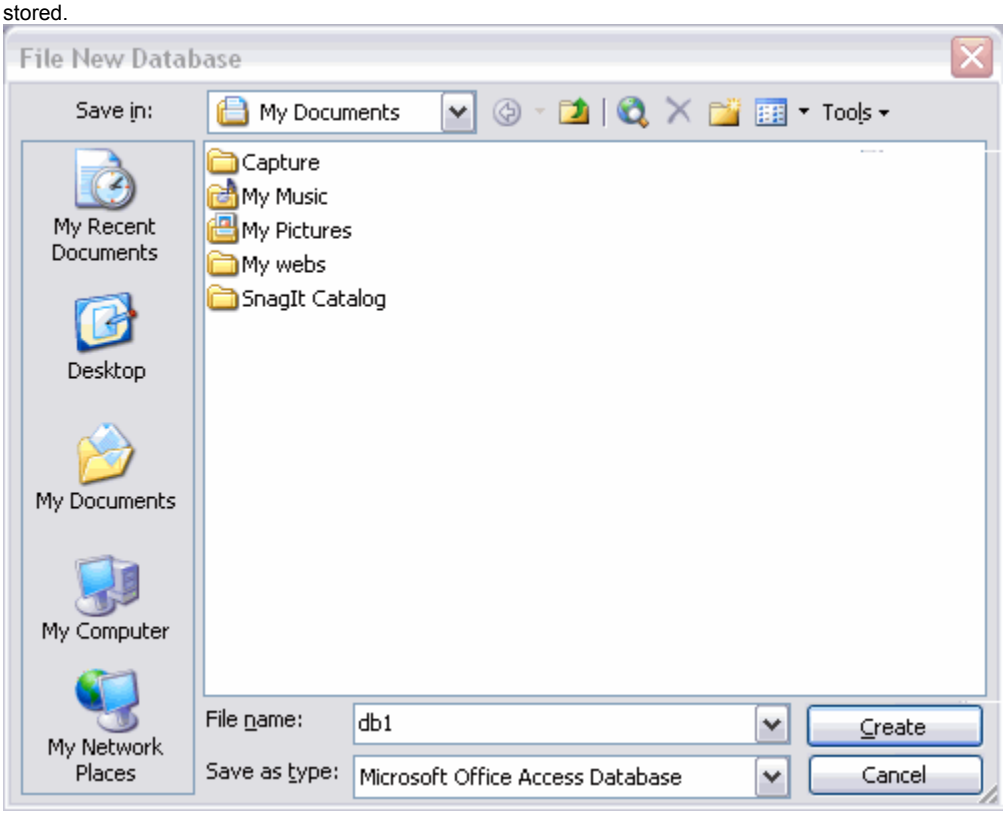
se we need to:

- Click on the option Blank database... in the task pane that appears to the right of the screen.

e we can use the File menu on the menu bar and select New...

Or we can click on the New button on the tool bar. In this case a task pane will appear and we have to select Blank database...

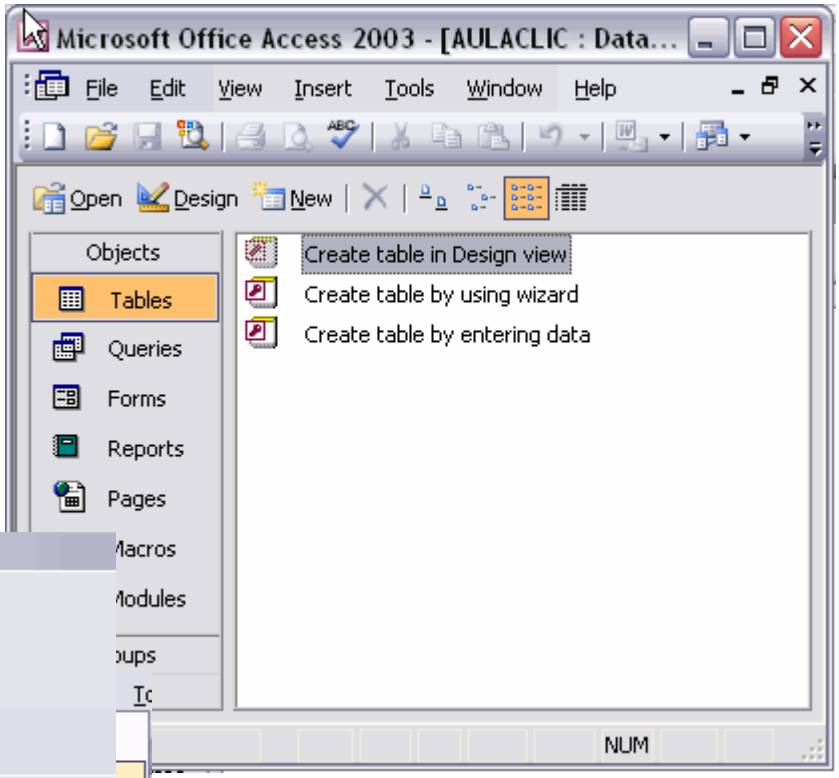
The following dialogue box will appear next where we indicate the name of the database we are creating and where it should be stored.



In the Save in: box click on the arrow on the right to select the folder where we are going to save the database.
Note how in the lower box appear all the subfolders of the selected folder.
Double click on the folder where we want to save the database.

The buttons that appear on the right of Save in, are explained here.
In the File name: box write down the name we want to call the database.
click on the Create button.

A new database is created to which Access assignes a .MDB extention, and it will appear in the Database window:





e Database window, on the left appear the different types of objects that we can have in the database, (tables, ..) and on the right, depending on the type of object selected on the left, Access shows us the objects of this type that are already been created and allows us to create new distinct objects.
In our case the object selected is the Tables, the primary element of any database as all the rest of the objects are created from this.
At this moment there are no tables created, when these are made they will appear on the right of the window below the Create... options.
We will study these options in the next unit.

If you wish to continue with this unit, go to the next page...

Unit 2. Create, open and close a Database (II)

Closing a database.

A database can be closed in various ways:

- Go to the File menu and select the Close option .
- Or click on the Close button in the Database window.

If we also want to close the Access session choose the option Exit fromFile menu or click on the close button in the title bar.

Opening a database.

There exist three different ways to open a database.

- From the menu bar:

Go to the File menu.
Choose the Open... option.

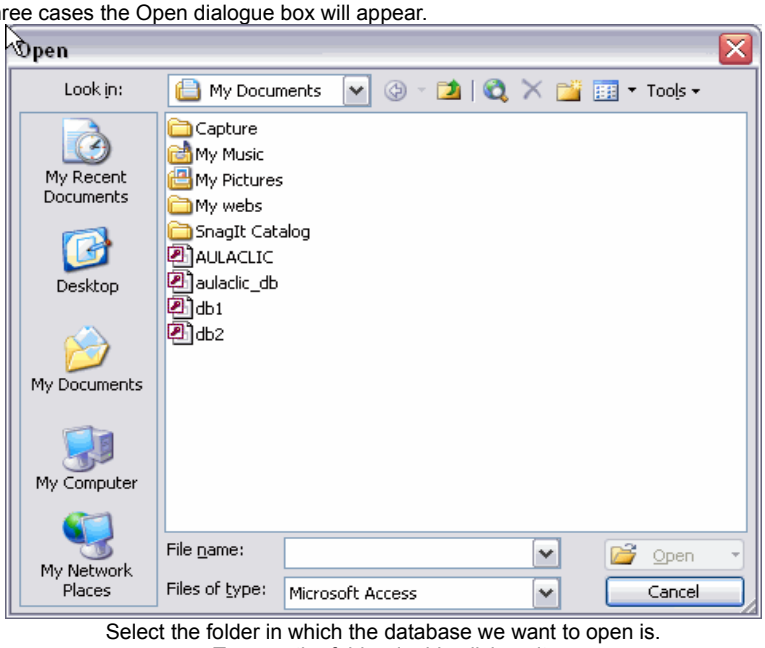
- From the toolbar:

Click on the Open button on the toolbar.

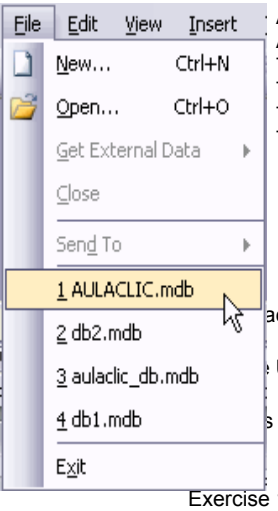
- From the task pane:

In Open section the last databases opened will appear and the option More...
To open one of the databases that appears click on its name, else select the option More... ????

In either of the previous three cases the Open dialogue box will appear.



Select the folder in which the database we want to open is.
To open the folder double click on it.
On opening a folder, it will be situated in the top Look in: box, and now in the bottom box all the information on this folder will appear.
Click on the database name to place its name in the File name: box and click on the Open button.
Or simply double click on the database name and it opens directly.



Another way of opening a database consists in using the list of previously opened databases.
At the end of the drop down menu of the File option on the menu bar appears a list with the last opened databases.
This list also appears in the task pane as we mentioned earlier.
To open a document double click on its name in the list.
The first document on the list is the last one opened.
This way of opening a database is most commonly used as we normally work with the same database always.

actice the concepts explained in this unit perform the Creating a database exercise.

Unit 2. Create, open, and close a database.

s is not open, open it in order to be able to carry out the following exercises.

Exercise 1: Distributer.

1 Create a database in My exercises folder in the hard drive and name it Cars. If the folder does not exist create it.
2 Close the previous database.
3 Open the Cars database.
4 Now close it.

Exercise 2: Clinic.

1 Create a database in My exercises folder and name it Clinic.
2 Close the previous database.
3 Open the Clinic database.
4 Now close it.

If you are not sure about the procedures to carry out in the exercises clic here.

Unit 2 evaluation test. Create, open, and close a database.

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the results.
If you press Reset you will be able to repeat the evaluation.

1. A database should not be closed before saving it as the last changes made will otherwise be lost.
 a) True.

 b) False.

2. It is not possible to have various databases open in the same Access session.
 a) True.

 b) False.
3. The most important element in a database is a table.
 a) True.

 b) False.
4. The only way to open a database is using the Open button on the toolbar, or the Open... option on the File menu.
 a) True.

 b) False.
5. The  button means...
 a) Open.

 b) New.

 c) Close.

6. The button means...
 a) Open.

 b) New.

 c) Close.
7. The button means...
 a) Open.

 b) New.

 c) Close.
8. If we click on the New button on the toolbar:
 a) The dialogue box New appears, to name the new database.

 b) An empty new database appears immediately on the screen.

 c) Either option.

 d) Neither of the options.

9. On opening the File menu we find:
 a) The option to close the database.

 b) The option to open a database.

 c) Either of the options.

 d) Neither of the options.

Bottom of Form

Unit 3. Creating data tables (I)

Here we will see how to create a data table in order to be able to introduce data into the database in the following units, and later work with this data using the advantages provided to us by Access2003.

Creating a data table. 

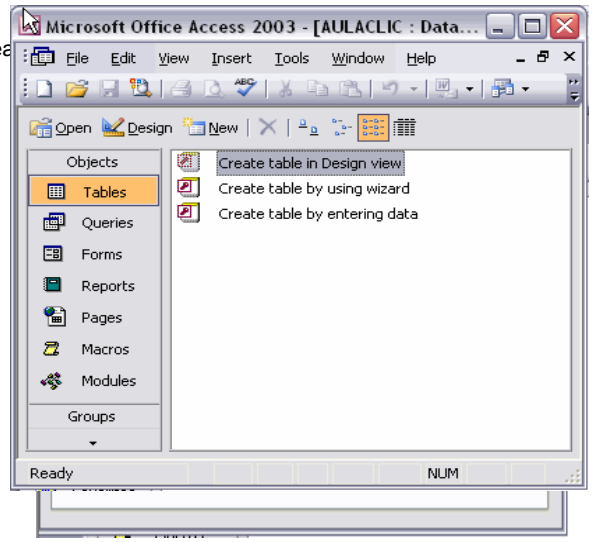
To create a data table we need to position ourselves in the database window with the Tables object selected, if we click on the New button 

it opens a window with the various available ways of creating a new table:

- Datasheet view consists of directly introducing the data into the table, and according to the value introduced into the column determines the type of data that the column has.
- Design view is the method we will detail in this unit.
- Table wizard guides us step by step in the creation of the table using a predetermined sample table.
- Import table consists of creating a new table from an existing one in another database.
- Link table consists of creating a reference to another table stored in a different database.

Next we will explain the way to create a table in design view. This method consists in defining the structure of the table i.e define the different columns that it will contain as well as other considerations such as codes, validation rules etc...
Another way to arrive at the design view is from the Database window with the Tables object selected then double clicking on the option Create table in Design view.

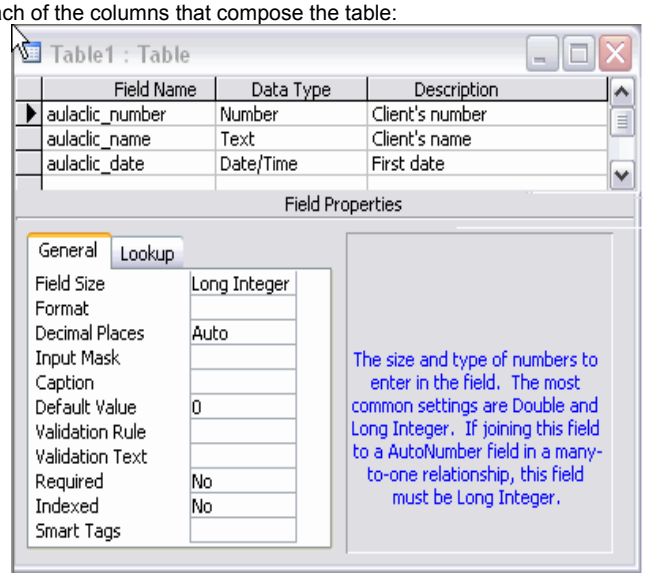
The Table design window will appea



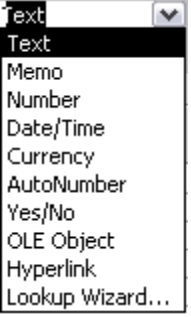
In the title bar we have the name of the table (as we have still not assigned a name to the table, Access has assigned a default name Table1.
Next we have a grid where we define the columns (fields) that compose the table using a line for each column, so in the first row of the grid we will define the first column of the table, in the second row of the grid we will define the second column of the table and so on and so on.
At the bottom left we have two tabs (General and Lookup) to define the properties of the field i.e additional characteristics of the column we are defining.
And on the right we have a box with text to help us with what we need to accomplish.
To continue, go to the next page.

Unit 3. Creating data tables (II)

We will fill in the grid defining each of the columns that compose the table:



We can define a field using the field builder which allows us to define fields from those in sample tables and are activated clicking on the button on the toolbar. For more information on the Field builder clic here .
Or we can define our own fields as explained next.



In the first row write the name of the first field, and by pressing the ENTER key we move to Data Type column, which by defect will be Text. Should we choose to change the type of data, click on the arrow of the drop down list and select another type.

For more information on different data types clic here 

If you require more information on the Lookup Wizard... clic here .

When we choose a type for the data, at the bottom of the window, the Field properties section is activated so as to be able to indicate more characteristics for the field, we will look at these characteristics in detail in the next unit.

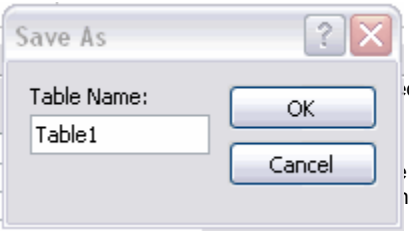
Press ENTER next to go to the third column of the grid.
It is not necessary to use this column as it only serves to write comments; usually a description of the field for the person who will be introducing data so as to know what to write, this comment will appear on the status bar on the data page.
Repeat the process until all the fields (columns) in the table have been defined.

The primary key

Before saving the table we need to assign a primary key.
The primary key provides a unique value for each row in the table and serves to identify the records in such a way that with this key we can be sure of not mistaking the record being identified. In a table we can not define more than one primary key, but we can have a multiple-field primary key (one primary key defined on several fields.
To assign a primary key to a field follow these instructions:
Click on the name of the field that will be the primary key.

Click on the Primary key button on the toolbar.
On the left of the field name will appear a key indicating to us that this field is the primary key of the table.
If we want to define a multiple-field primary key (based on various fields), hold down the Ctrl key and click on all those fields, then

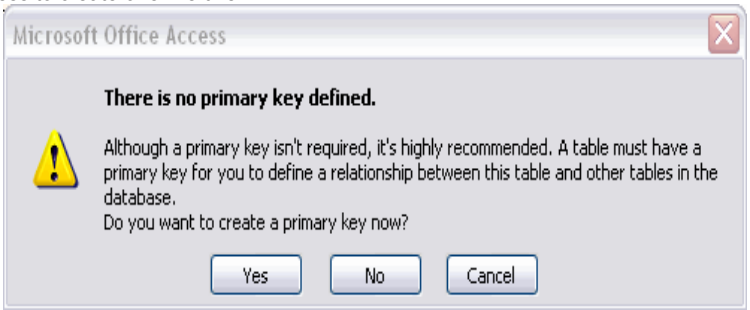
click on the button.
Important: Remember that a field or group of fields forming the primary key of a table cannot contain null values and neither have two rows in the table with the same value in the primary key fields.
When we try to insert a new row with values that infringe on these two rules the system will not allow us to create the row and will return an error.



ed to:
and select Save.
button on the toolbar.
not have a name, the following dialogue box will appear:

Write the name of the table.
Click on the OK button.

Note: If we have not assigned a primary key before saving the table, a dialogue box will appear advising us of this, and asking whether we would like Access to create one like this:



If we decide Yes, it will create a Autonumber field and will define it as the primary key.
If we decide No, the table is saved without a primary key, a primary key is convenient but not obligatory.

Closing a table.

To close a table, follow these steps:

- Go to the File menu and select the Close option.
- Or, clic in the Close button in the Database window.

To practise what you have learnt, you can perform the Step by step Exercise Tables Creation.

Exercise Unit 3. CREATE A DATA TABLE.

If Access is not open, open it in order to be able to carry out the following exercises.

Exercise 1: Distributer.

1 Open the Cars database in My exercises folder in the hard drive.

2 Create a table named Clients with the following fields:

Field Name	Data Type
Client Code	Number
Client Name	Text
Client Surname	Text
Client Address	Text
Client City	Text
Client Postal Code	Text
Client State	Text
Client Phone	Text
Client Birth	Date/Time

The primary key will be Client code.

3 Create another table named Sold Cars with the following fields.

Name of field	Type of data
Licence	Text
Make	Text
Model	Text
Colour	Text
Price	Text
Extras	Memo

The primary key will be License.

4 Create another table named Services with the following fields:

Name of field	Type of data
Service Number	Autonumber
Oil Change	Yes/No
Filters Change	Yesí/No
Revise Brakes	Yes/No
Other	Memo

The primary key will be Service Number

5 Close the database.

Exercise 2: Clinic.

1 Open the Clinic database in My exercises folder in the hard drive.
2.Create another table named Patients with the following fields.

Name of field	Type of data
Patient Code	Number
Patient Name	Text
Patient Surname	Text
Patient Address	Text
Patient City	Text
Patient Zip Code	Text
Patient State	Text
Patient Phone	Text
Patient Birth	Date/Time

For the moment we will not define a primary key.

3 Create another table named Doctors with the following fields.

Name of field	Type of data
Doctor Code	Text
Doctor Name	Text
Doctor Surname	Text
Doctor Phone	Text
Doctor Speciality	Text

For the moment we will not define a primary key.

4 Create another table named Entries with the following fields:

Name of field	Type of data
Entry Number	Autonumber
Entry Room	Number
Entry Bed	Text
Entry Date	Date/Time

Do not define a primary key.

5 Close the database.

Unit 3 evaluation test. Create, open, and close a database.

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the results.
If you press Reset you will be able to repeat the evaluation.

1. A Table is the first object to be created in a database.
 a) True.

 b) False.

2. All tables must have a Primary key.
 a) True.

 b) False.
3. The properties in the fields vary according to the field description.
 a) True.

 b) False.

4. On saving a table it adquires a .MDB extension.
 a) True.

 b) False.
5. In an OLE field you can store a photo.
 a) True.

 b) False.
6. A Lookup field...
 a) ...has an associated combox box with a list of values.

 b) ...has a  button in front of.

 c) Neither of the previous options.
7. The  button means...
 a) Lock the table.

 b) Primary key.

 c) Index.
8. To create a primary key on a three fields group...
 a) ...is not possible.

 b) ...define the first as primary key, then the 2nd, and then the 3rd.

 c) ...select the three fields and then click on the Primary key button.

9. Whilst having the Table object selected, if we click on the 

button in the database window.
 a) A new table is created using the wizard.

 b) A datasheet opens in a new table.

 c) A dialogue box opens.

 d) None of the previous options.
10. The field builder...
 a) will ask us what we want to call a field.

 b) generates a field in accordance with the value we write.

 c) permits us to choose fields from a sample fields list.

 d) create an aleatory field.

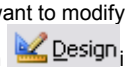
Bottom of Form

Unit 4. Modifying data tables (I)

Here we will see the record editing techniques used to modify a table definition as well as the data introduced into it.

Modifying the design of a table.

If we wishmake an alteration in the definition of an existing table (e.g to add, extend or delete an existing column etc...) we need to make a modification in its design.
Open the database where the table we want to modify is found if you are not already there.
Select the table that you want to modify by clicking on it so that its name stands out.

Click on the Design button 

in the database window.
The Table Design window studied in the previous unit will appear.

- To modify a field design, position the cursor over the field to modify, and perform the necessary substitutions.
- To add a new field,

go to the end of the table and type in the new field definition.
or,

situate yourself in an already existing field and click on the button in the Table Design bar, in this last case the new field will be inserted before the one in which we are positioned.

- To delete a field,

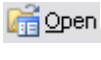
position yourself in the field and click on the button in the Table Design bar.
or,
select the whole row corresponding the field by clicking on its extreme left, and when it stands out press the Del key.
The field, as well as the data stored in it will be erased from the table.

And lastly, save the table.

To practice these operations you can perform the Step by step Exercise Modifying the table design.

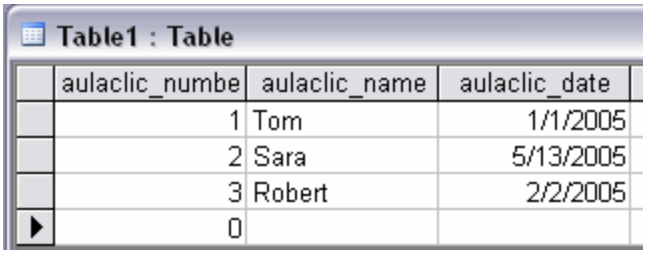
Introducing and modifying data in a table. 

To introduce data into a table we can choose:

- In Database window, select the table to fill in by clicking on its name and click on the 

button to open the table.
- In Database window, double click on its name.

- If you are in Table design window, click on the Datasheet button in the Table design bar.
In all three cases the Datasheet window will appear:



Each rows allow us to introduce a record.
Write the value of the first field of the record.
Press ENTER to go to the next field in the record.
Once we have finished introducing all data in fields in the first record, we press ENTER key to introduce the data in the second record.
The moment we change to a different record, the record that we were in will be stored, and it is therefore not necessary to save the records again.

Click on the Close button in the Datasheet window to conclude this table.

If we want to delete an entire record:
Select the record to eliminate by clicking on the box on its extreme left (named record selector).
The record will remain selected.

Press the DEL key on the keyboard or on the button on the Datasheet bar.

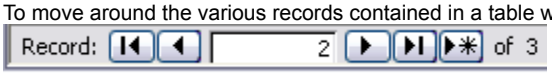
Is we need to modify an inserted value all we need to do is situate ourselves over the value and re-tyte it.

If we need to alter something in the tables' structure, we will need to go to Design view by clicking on the button on the Datasheet bar.

To practice these operations you can perform the Step by step Exercise Introduce data.

Moving within a table.

To move around the various records contained in a table we can use the Navigation buttons:



The bar indicates to us which record we are in and the total number of records in the table.
The current record is indicated in the white box.
In the final number where we see of 3, the total number of records is indicated to us.
By clicking on the different buttons we can perform the operations explained next:

to go to the first record in the table.

to go to the previous record in the table.

to go to the next record in the table.

to go to the last record in the table.

To create a new record that is automatically situated at the end of the table.
We can also go directly to a determined record in the following way:
Double clic in the white box where the current record number is situated.
Write the number of the record we want to go to.
Press ENTER.
We can also move around the different fields and records by pressing the ARROW UP, ARROW LEFT, ARROW DOWN, and ARROW RIGHT keys on the keyboard.

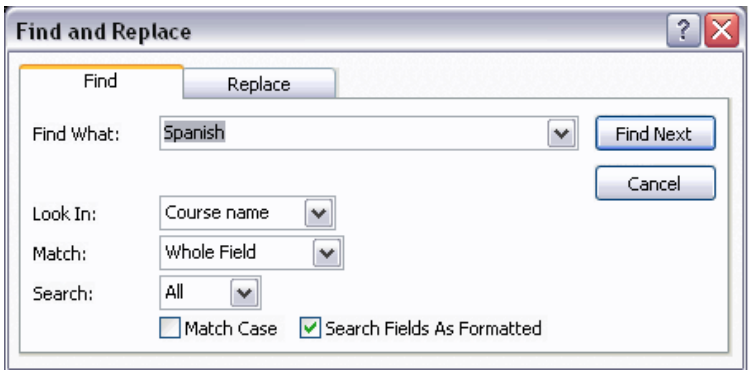
To practice the operations studied you can perform the Step by step exercise Moving within a table.

Unit 4. Modifying data tables (II)

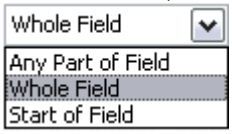
Find and replace data.

We will often need to search for a record when knowing the value of some of its fields. In order to perform this operation we have at our disposal the Access2003 Find tool.
In order to use this tool we need to visualize the data in Datasheet view, next position the cursor in the column that we want to search in, and finally drop down the Edit menu and select the Find... option, or click on the button on the toolbar.
The Find and replace dialogue box will appear next:





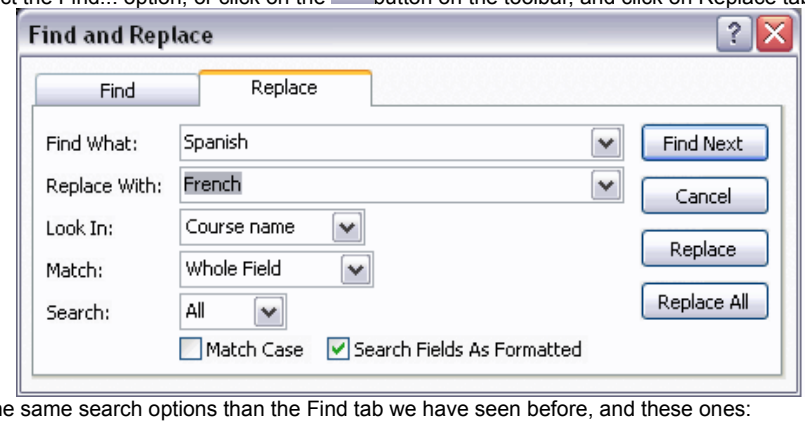
In the Find What: box, we write the value to find.
In the Look in: box we indicate the field where the value being searched for can be found. By defect it will take the field in which we have the cursor at that moment, and if we want it to look in any other field we can select the name of the table from the list.
In the Match: box, we select one of these three options:



Whole field so that the value being looked for coincides exactly with the value introduced in the field.
Any part of the field so that the value being looked for is found in the field but does not need to coincide exactly.
Start of field so that the value being looked for is the initial part of the field.

After this we can indicate in Search:
All so that it will look in all the records of the table.
Up so that it will look in all the records from the first until the one we are currently situated in.
Down to look from the record we are currently in until the last.
If we activate the Match Case box then Access will differentiate between upper or lowercase at the time of the search (if we are searching for Mary we will not find mary).
We can click on the Find next button to start the search, and it will position us in the first record that match the search requirements.
If we wish to continue the search we can click on the Find next button succesively until we find the record that we are searching for.
Close the dialogue box after this.

If we want to substitute a value with another we can use the Replace option.
To make use of this tool we must be in Datasheet view, then position the cursor in the field we wish to replace, and finally drop-down the Edit menu and select the Find... option, or click on the  button on the toolbar, and click on Replace tab.



The Replace tab has the same search options than the Find tab we have seen before, and these ones:
In the Replace with: box also we type the substitution value.
With the Replace button, the value that we are currently positioned in will be replace.
With the Replace All button all the values found will be replace.
We need to be very careful with this option so that we do not get undesired results, especially if we do not use the Whole field option.

To practice these operations you can perform the Step by step Exercise Searching for data in a table.

Exercise Unit 4: Modifying data tables.

If Access is not open, open it in order to be able to carry out the following exercises.

Ejercicio 1: Cars.

1 Introduce the following data into the Clients table in the Cars database in My exercises folder.

Client code	Client name	Client surname	Address	City	Postal code	Province	Telephone	Date of birth
100	Antony	Wood	58 Cedar Ave	Denver	46011	CO	963689521	08/15/60
101	Charles	Standwood	5 W Franklin Blvd.	Chicago	45300	IL	962485147	04/26/58
105	Louis	Wolf	11 Main st.	Dallas	75201	TX	962965478	0330/61
112	James	Smith	121 Cedar Ave	Denver	46014	CO	963684596	01/31/68
225	Andrew	Fields	23 Seneca rd	Miami	33500	FL	963547852	04/28/69
260	Joseph	Taylor	14 Cedar Ave	Denver	46002	CO	963874569	05/15/64
289	Elisabeth	Baker	4 Lake St.	Miami	33500	FL	963547812	07/10/62
352	Eva	Santos	34 Manor Rd.	Austin	75300	TX	962401589	08/12/65
365	Gerard	Swan	8 Steel St.	Denver	46002	CO	963589621	02/01/65
390	Charles	Prats	8 Alameda Ave	Denver	46005	CO	963589654	03/05/67
810	Louisa	Oliver	1562 Steel St.	Denver	46007	CO	963587412	06/25/64
822	Samuel	Larred	65 Steel St.	Denver	46005	CO	963589621	12/25/67
860	James	Tree	8 Main st.	Austin	75300	TX	963758963	04/05/69
861	James	Tree	8 Main st.	Austin	75300	TX	963758963	04/05/69

2 Change the name of James Smith to Antony.
3 Delete the last record.
4 Close the table and the database.

Exercise 2: Clinic.

1 Modify the structure of the Patients table in the Clinic database in My exercises folder following these indications:

Field name	Data type
Patient code	Primary key
Patient State	Erase this field

2 Edit the structure of the Doctors table with the following data:

Field name	Data type
Doctor code	Primary key
Doctor Phone	Erase this field

3 Edit the structure of the Admissions table with the following data:

Field name	Data type
Entry Number	Primary key

4 Close the database.

If you are unsure about any of the operations to perform in the previous exercises, Here we will explain them to you.

Unit 4 evaluation test. Modifying data tables.

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the answers.
If you press Reset you will be able to repeat the evaluation.

1. Table design allows us to edit the structure of the table.
 a) True.

 b) False.

2. It is dangerous to edit the design of a table if we have already introduced records in it.
 a) True.

 b) False.
3. If we want to introduce data into a table and we wish to go to its design we first need to close the table.
 a) True.

 b) False.

4. A record can be added at any moment and in any position within a table.
 a) True.

 b) False.
5. A primary key cannot be changed once it has been assigned to a field without loosing the data.
 a) True.

 b) False.
6. To know how many rows a table contains...
 a) ...you must position yourself in the last row.

 b) ...I have the data on the Navigation bar.

 c) Neither option.
7. The 

button allows us...
 a) ...to go to the table's datasheet.

 b) ..to go to the design of the table.

 c) ...to open the wizard.
8. The  button permits us...
 a) ... to erase a column.

 b) ... to erase a row of data.

 c) ... to undo the last action.

9. The 

bar allows us...
 a) ...to go to a determined record.

 b) ...to create a new record.

 c) ...either of the options is valid.

 d) Neither of the options.

10. If we are introducing data into a table and we press the RIGHT ARROW...
 a) ...we go to the next field.

 b) ...we go to the next record.

 c) ...both the options could be correct.

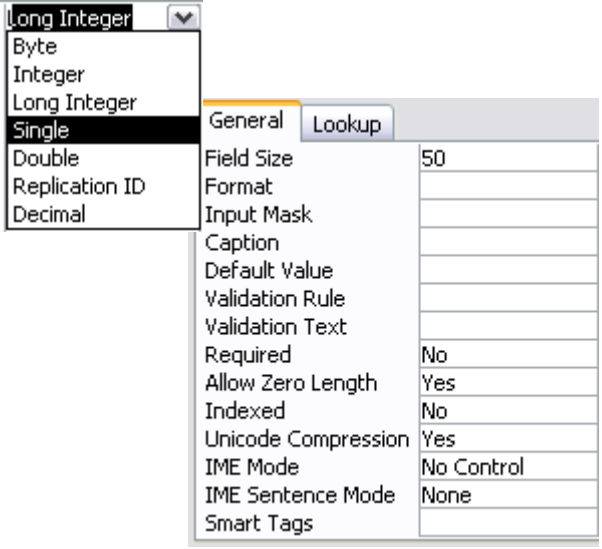
 d) Neither of the options.

Bottom of Form

Unit 5. Properties of the fields

Introduction

Every field within a table has a severals characteristics set out which provide an additional control with regard to the way in which the field functions. The properties appear in the lower part of the Table design window when we have a field selected.



The properties are grouped in two tabs: the General tab where we indicate the fields general characteristics, and the Lookup tab where we can define a list of valid values for the field. This last tab is explained in unit 3 together with the lookup wizard.
The properties in the General tab can vary for one type of data to another, while the properties in the Lookup tab change according to the type of control associated with the field.
Keep in mind that if the properties of a field are modified after data has already been introduced, this data may be lost.
Next we will explain the various properties available for the different types of data.

Field size

- For Text fields, this property determines the maximum number of characters that can be introduced into the field. By default it is set at 50 characters with a maximum value of 255.
- For Numeric fields the options are:

Byte (equivalent of 1 character) to store integer values of between 0 and 255.
Integer for those values between -32,768 and 32,767.
Long integer for integer values between 2,147,483,648 and 2,147,483,647.
Single for values between -3.402823E38 and-1.401298E-45 for negative values, and between 1.401298E-45 y 3.402823E38 for positive values.
Simple para la introducción de valores comprendidos entre -3.402823E38 y -1.401298E-45 para valores negativos, y entre 1.401298E-45 y 3.402823E38 para valores positivos.
Double for values between -1.79769313486231E308 y -4.94065645841247E-324 for negative values, and 1.79769313486231E308 y 4.94065645841247E-324 for positive values.
Replication ID is used for autonumeric keys in replication bases.
Decimal is for storing values between -10^38-1 and 10^38-1 (if we are in a .adp database) and numbers between -10^28-1 and 10^28-1 (if we are in a .mdb database)

- Autonumerical fields are Long integer.

Size can not be specified with any other type of data.

Field format 

This property is used to personalise the way in which data is presented on the screen or in a report.
This can be establish in all types of data except the OLE object and Autonumerical.

- For Numeric and Currency fields the options are:

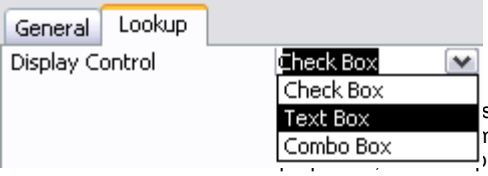
General number: presents numbers in the same way as they have been introduced.
Currency: presents the values introduced with a thousandth separator and the assigned monetary symbol in Windows e.g $
Euro: uses the currency format, with the euro symbol.
Fixed: presents the values without the thousandth separator.
Standard: presents the values with the thousandth separator.
Percent: multiplies the value by 100 and adds the percent sign (%).
Scientific: presents the number with scientific notation.

- Date/Time fields have the following formats:

General date: if the value is only a date no time is shown; if the value is only a time no date is shown. This value is a combination of the Short date and Long time values. E.g '3/4/93', '05:34:00 PM' and '3/4/93 05:34:00 PM'.
Long date: the date is seen together with the day of the week and the month in full. E.g Monday, August 21, 2000.
Medium date: presents the month with the first 3 letters. E.g 21-Aug-2000.
Short date:the date is presented with 2 digits for the day and month. E.g 01/08/00 or 01/08/2000.
The Short date format assumes that dates between 1/1/00 and the 31/12/29 are dates between the years 2000 and 2029, and that the dates between 1/1/30 and the 31/12/99 are for the years 1930 to 1999.
Long time: presents the time in normal format. E.g 05:35:20 PM
Medium time: presents the time in PM or AM format. E.g 5:35 PM
Short time: presents the time without seconds neither PM. E.g 17:35.

- Yes/No fields have predefined Yes/No, True/False, and On/Off formats available.

Yes, True and ON are the equivalents of yes, as are No, False, Off of no.



s/No data is the verification box as we seen in Datasheet the data of this type appears in a verification
nat property. If we choose to see the effect we need to change the default control in the Lookup tab in
lay control property select Text box as we will show you next.

The Text and Memo fields do not have predefined formats available, for the Text fields we will need to create your own custom formats.

If you want more information on custom format clic here

Decimal places

This property allows us to indicate the number of decimals we would like to assign to a Number or Currency type data.

Input mask

The input mask is used to ease the data entry and to control the values that users are permitted to introduce in the field. E.g, you can create an input mask for a Telephone number field that shows the exactly how a new number should be introduced:(___) ___-____.
Access has an input mask wizard that helps us to establish this property, to enter the wizard click on the button that appears to the right of the property once this property is activated.

If you require more information about the customizing of an input mask click here

Caption

This property is used to indicate how we choose to visualize the title of the field.
E.g, if a fields name is Birth and we indicate Date of birth as the value in the Caption property, we will see Date of birth in the header of the Birth field and in the labels in forms or reports..

Default value

The default value is the value automatically stored in the field if no value is introduced. It is usually used when we know that a determined field is going to have the same value the majority of the time, it is used to indicate or specify what the value will be so that it can be automatically introduced at the time of data being introduced into the table.
E.G, if we have the Clients table with the Province field and the majority of the clients are from the TEXAS province, this value can be introduced into the Default value property of the Province field, and therefore at the moment of introducing a new client the value TEXAS will appear automatically without needing to be typed.
This property can be used with all types of data except OLE object and Autonumber.

Validation rule.

This property permits us to control the entry of data according to a specified criteria.The criteria must to be typed to ensure that any value introduced into the field is good.
E.g, if we decide that the values introduced should be between 100 and 2000, we type >=100 AND <=2000 in Validation Rule property, so when data is entered and not matches the condition, an error message will be displayed.
This property can be use with all types of data except OLE object and Autonumerical.

To build the condition you can use the Expression Builder as we will explain to you in this video tutorial.

Validation text

In this property we will write the text which we wish to appear in the case of us trying to introduce a value into a field that does not comply with the validation rule specified before.
The message needs to be so that the person making the mistake will realize his error and be able to correct it.
This property can be used with all types of data except OLE object and Autonumerical.

Required

Set this property to Yes value, so the user must enter a correct value into the field. When this property is set to No, the field can remain empty.
This property can be used with all types of data except Autonumber.

Indexed

This property is used to set a single-field index. An index speeds up queries on the indexed field as well as sorting or grouping sorting.

E.g, if you are looking for employees using the Surname field, you can create an index on the field to make the search faster.
This property has three available values:
No: without index it is the default value for this property.
Yes (uplicates OK): When an index is assigned to a field and furthermore allows duplicate values (two rows with the same value in the field).
Yes (No duplicates): When an index is assigned but no duplicate values are allowed.

If you want to know more about indexes clic here .

To practice theses operations you can perform the Step by step exercise on the fields properties.

Unit 5 Exercises. The field properties

If Access is not open, open it in order to be able to carry out the following exercises.

Exercise 1: Distributer

1 Edit the structure of Clients table in Cars database using the following data:

Field name	Properties
Client code	It is not possible to introduce clients whose code is not composed of values between 1 and 3000.
Client name	Size: 15
Client surname	Size: 30
Client Address	Size: 30
Client City	Size: 15
Client Postal code	Size: 5, only allows 5 digit numbers.
Client State	Size: 15 By default the value is: TX, as most of our clients are from this state.
Client Phone	Size: 10 with telephone Input Mask
Client birth	Format: Short date

2 Try to change the code of the first client to 3500:
Observe how we are not allowed to as the validation rule has not been complied with, and the message you typed is displayed.
3 Answer OK and leave the code as 100.
4 Test all the rest of the properties that we have included.
5 Edit the structure of the Sold Cars table.

Field name	Data type
License	Size: 7
Make	Size: 15
Model	Size: 20
Colour	Size: 12
Price	Numeric currency format
Extras installed	Leave as is

6 Close the table saving changes.
7 Close the database.

Exercise 2: Clinic III.

1 Edit the Patients table in the Clinic database following these indications:

Field name	Data type
Patient code	Integer
Patient Name	Size: 15
Patient Surname	Size: 30
Patient Address	Size: 30
Patient City	Size:15
Patient Zip code	Size: 5
Patient Phone	Size: 10
Patient Birth	Format: Short date

2 Edit the Doctors table with the following fields:

Field name	Data type
Doctor code	Size:5
Doctor name	Size:15
Doctor surname	Size:30
Especiality	Size:20

3 Edit the Entries table with the following fields.

Field name	Data type
Entry Room	Integer
Entry Bed	Size: 1
Entry Date	Format: Short date

4 Close the database.

If you are unsure of how to carry out any of the exercises, Here we will explain them to you.

Unit 5 evaluation test . The field properties.

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the answers.
If you press Reset you will be able to repeat the evaluation.

1. The Validation text property contains the conditions that data introduced into the field needs to comply with.
 a) True.

 b) False.

2. If we place text in the Title property this text will be diplayed on the Status Bar.
 a) True.

 b) False.
3. If there is no Default value in a numeric field, it is the same as entering a zero.
 a) True.

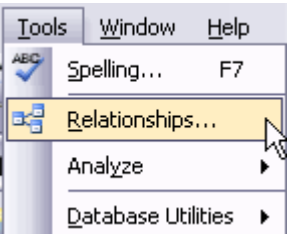
 b) False.

4. We improve the table by defining all its field as indexed.
 a) True.

 b) False.
5. The primary key is indexed without duplicates values.
 a) True.

 b) False.
6. In order to introduce data within a determinated format we use the property named
 a) ...format.

 b) ...input mask.
 c) ...default value.



7. I have a Text data type field, I am going to introduce text into it but the text is too long...

 a) ...increase the value in the Field Size property.

 b) ...I cannot increase the value as the data introduced will be lost.

 c) ...change the Input mask property.
8. The Integer data type allows...

 a) ...storage of numbers with up to two decimals.

 b) ...does not permit decimals.

 c) ...does not permit negative numbers.
9. In order for the introduction of values to be obligatory in a specific field...
 a) ...I select the Yes value in the Required property.
 b) ...place the appropriate input mask.

 c) ...there is no way.

 d) I select the No value in the Required property.
10 If I have defined a two-fields index Without duplicates based on the Province and City fields...
 a) ...it is not possible to have two records from the same city.

 b) ...it is not possible to have two records from the same province

 c) Both previous answers are correct.

 d) All the previous answers are false.

Bottom of Form

Unit 6. Relationships (I)

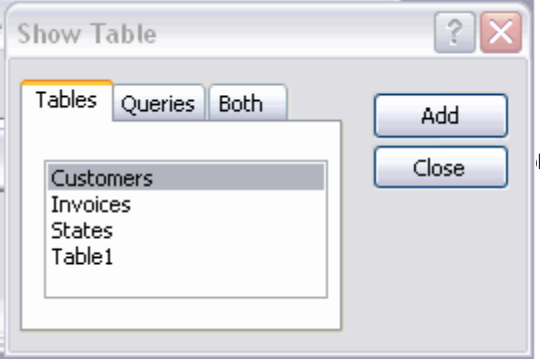
In this unit we will see how to relate tables and the different types of relationships that can exist between two tables in a database.

If you do not know what a relationship is in a database, here  we will introduce you to some basic concepts to understand relationships better.

Creating the first relationship. 

To create relationships in Access2003 firstly we need to position ourself in the Relationships window, we can opt for:

- in Database window, drop down Tools menu, and select Relationships... option.



lbar.

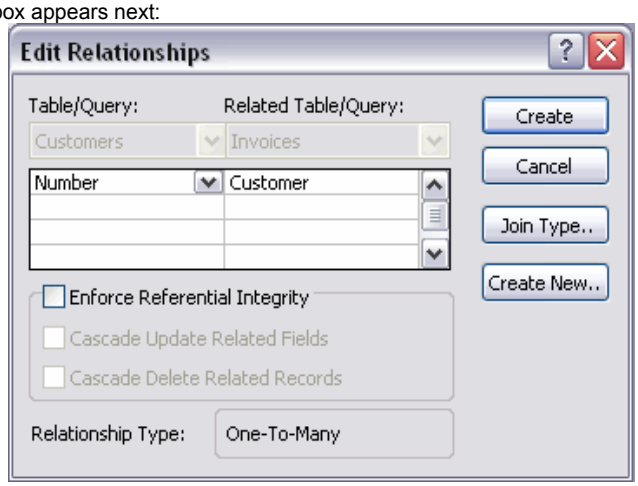
The Show table dialogue box will appear:
Click on one of the tables required in the relationship and click on the Add button; or double-click the name of the table.
Repeat the previous step to add the second table, and so on.
Finally click on the Close button to finish adding tables.

Now the Relationships window will appear with the tables added before.



To create the relationship:
Drag the field of the principal table to the equivalent field in the related table. In our case drag Number (in Customers table) to Customer (in Invoices table).
Normally you drag the primary key of the primary table.
To relate tables with two or more fields, first select the fields mantaining CTRL key down, and then drag them.

The Edit relationships dialogue box appears next:



At the top should be the names of the related tables (Customers and Invoices) and below this the names of the related fields (Number and Customer). Observe! they always have to be the same kinds of fields containing the same types of information.
Observe at the bottom the Relationship type assigned depends on the charateristics of the related fields (in our case One-to-Many)
Activate the Enforce Referential integrity by clicking on it.
If desired, the boxes Cascade Update Related Fields and Cascade Delete Related Records can be activated.

If you want to know more about referential integrity and Cascade procedures clic here .
To terminate, click on the Create button.
The relationship is created and will appear in the Relationships window.

To practice these operations you can perform the Step by step Exercise Step by step exercise on creating relationships.

Unit 6. Relationships (II)

Adding tables to the Relationships window

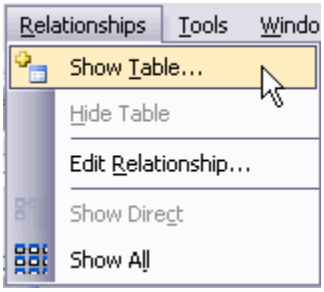
If we have already created a relationship and want to create another but the table is not ready in the Relationships window we need

to add the table to the window.

Firstly we situate ourself in the Relationships window by clicking on the button on the toolbar.
To add the table we can choose between:

- Click on the Show table button 

or,



- Select Show table... in the Relationships menu

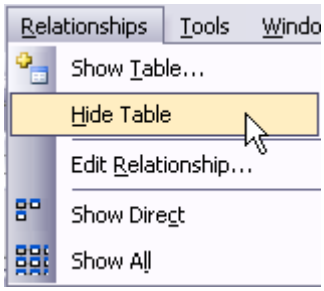
The Show tables dialogue box will appear as studied in this unit.
Add the necessary tables.
Close the dialogue box.

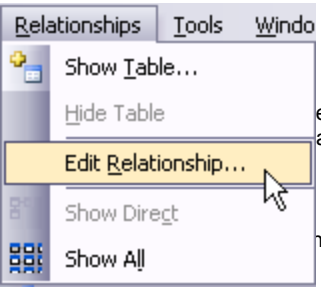
Removing tables from the Relationship window.

If we choose to eliminate a table from the Relationship window:

Firstly we situate ourself in the Relationships window by clicking on the button on the taskbar.
Then we can choose between:

- Right clic over the table and select the Hide Table option from the contextual menu that appears,





e table to select it, and in the Relationships menu select Hide Table....
ar from the window together with all relationships associated with it, but it still exists in the database, the tables remains

ips.

To edit already created relationships:
Situate yourself in the Relationship window and choose between these three ways:

- Right clic the relationship to edit and select the Edit relationship option from the contextual menu that appears,

or,

- Click on the relationship to edit and select Edit Relationship... from the Relationships menu.

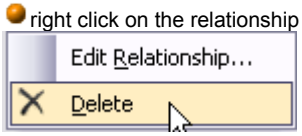
- Double-click on the relationship.

The Edit relationships dialogue box will open as studied previousely.
Carry out the desired changes.
Click on the OK button.

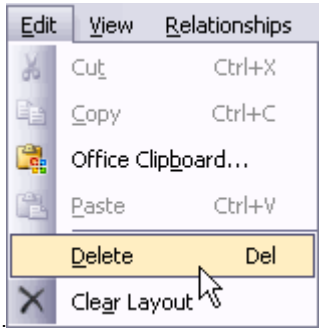
Deleting relationships.

If we want to delete a relationship we can:

- right click on the relationship we wish to delete and select the Delete option from the contextual menu,



or,



- Click on the relationship we wish to delete and select the Delete option from the Edit menu.

or,

- Click on the relationship so that it remains selected and next press the Del key.

The relationship will have been deleted from the window and the database.

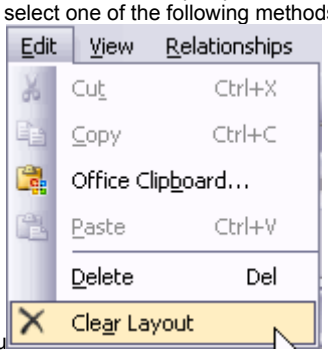
To practise any of these operations you can perform the Step by step Exercise Editing relationships.

Unit 6. Relationships (III)

Tidying the relationship window

When our database contains many tables and relationships, the Relationship window could become so complex that it is difficult to interpret. We can overcome this difficulty by tidying the window and visualizing only the tables and their relationships that interest us in one moment. We use the Clear layout and Show direct relationships options for this as we will describe to you next.

Situate yourself in the Relationships window and select one of the following methods:



- Select the Clear layout option in the Edit menu

or,

- Click on the button on the toolbar.

All the tables and all the relationships in the Relationship window will disappear. The relationships disappear from the window but remain in the database, we have only clear the window.

From this moment we can add the tables that interest us with the Show table option learnt before and also relationships defined with these tables with the Show direct option we will explain next.

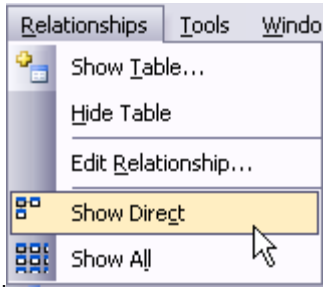
Showing Direct Relationships

This option permits us to visualize all the relationships based on a specific table in the Relationships window, to do this:

Position yourself in the Relationships window and choose between:

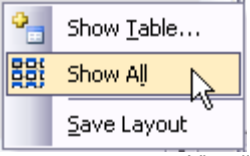


- Rght click on the table and select the Show direct option in the contextual menu that appears,



- Click on the table to select it and select the Show direct option from the Relationship menu.
- Click on the table to select it and then click on the button.

All the relationships associated with the table and all the tables related in these relationships will now appear.



Visualizing all the relationships

If you wish to visualize all the relationships in the Relationships window:
Position yourself in the Relationship window and choose between:

- Right click on the background of the window and select Show all from the contextual menu that appears,

or,



- Select the Show All option from the Relationships menu

- Click on the  button.

All the existing relationships in the database and all the associated tables will appear.

- To practise these operations you can perform the Step by step Exercise exercise on the relationships window..

Unit 6 exercises. Relationships

If Access is not open, open it in order to be able to carry out the following exercises.

Exercise 1: Cars

1 Open the Cars database from My exercises folder.
2 Add a Numeric field Client to the Sold cars table. This field will tell us which client has bought the car.
3 Add a Text field Car, Size 7, in the Services table which will tell us which car (of the Sold Cars) corresponds the service.
4 Create appropriate relationships between tables.
5 Introduce the following data into Sold cars:

License	Make	Model	Colour	Price	Extras	Client
V2360OX	Chevrolet	Cobalt	Blue	12990	Electric aerial	100
V1010PB	Ford	Focus	White	13995		101
V4578OB	Ford	Fusion	Black	17900	Air conditioning	105
V7640OU	Audi	A4	Black	28960	Airbag	225
V3543NC	Ford	Taurus	Red	21595		260
V7632NX	Audi	A3	Red	25600	Air conditioning, Airbag	289
V8018LJ	Ford	Fusion	Blue	17850	Electric wipers	352
V2565NB	Chevrolet	Malibu	White	16990		390
V7642OU	Ford	Focus	White	13995		810
V1234LC	Audi	A3	Green	27000	Air conditioning	822
V9834LH	Chevrolet	Impala	Red	20990		860

6 Introduce the following data into the Services table:

Service Number	Oil Change	Filter Change	Revise Brakes	Other	Car
1	Yes	No	No	Lights service	V7632NX
2	Yes	Yes	No	Change washers	V7632NX
3	No	Yes	Yes	Repair alarm	V4578OB
4	No	Yes	Yes	Adjust panel	V2360OX
5	Yes	Yes	Yes	Change washers, fix alarm	V2565NB
6	No	No	Yes	Change interior light	V7640OU
7	Yes	Yes	Yes		V2565NB
8	No	No	No		V8018LJ
9	Yes	No	Yes	Lights service	V3543NC
10	No	Yes	No	Repair alarm	V8018LJ
11	No	No	No		V3543NC
12	Yes	Yes	Yes		V1234LC
13	No	Yes	No	Change washers	V9834LH
14	No	Yes	No		V1010PB

7 Close the database.

Exercise 2: Clinic IV.

1 Open the Clinic database from My exercises folder.
2 Add to the Entries table a numeric Patient field with Field Size Integer (this field will serve to show us which client corresponds the entry) and whitout Default value (remember what we said about numeric related fields!), and a text field (Size 5) named Doctor (this field will serve to know which doctor to entrust the entry to).
3 Create the appropriate relationship between the tables.
4 Introduce the following data into the Patients table.

Patient code	Patient Name	Patient Surname	Patient Address	Patient City	Patient Zip code	Patient Birth
100	Joe	Green	121 Cedar Ave	Dallas	78600	03/31/75
102	David	Smith	8 Main st.	Austin	78767	10/30/47
103	David	Buttom	34 Manor rd	Austin	78767	06/11/87
110	Joe	Beckam	8 Steel st.	Dallas	78600	17/08/36
120	Sam	Potter	1 Cedar Ave	Dallas	78600	12/04/50
130	Joe	Taylor	8 Steel st.	Dallas	78600	01/23/32
131	Peter	Green	45 Main st..	Austin	78767	12/08/90
140	Joe	Williams	8 Main st.	Dallas	78600	01/25/58
142	Joe	Smith	14 Manor rd	Austin	78767	03/25/58
200	David	Lennon	18 Steel st.	Dallas	78600	12/01/73
201	Sam	Buttom	8 Steel st.	Dallas	78600	05/05/55
207	Joe	Weasley	11 Cedar Ave	Dallas	78600	12/07/90
220	Johnny	Granger	38 Steel st.	Dallas	78600	07/19/5
231	Joe	Sun	89 Main st.	Dallas	78600	6/13/40
240	Andrew	Smith	25 Main st.	Austin	78767	02/07/85
300	Sam	Beckam	64 Manor rd	Austin	78767	05/05/77

5 Introduce the following data to the Doctors table.

Doctor code	Doctor Name	Doctor Surname	Doctor Speciality
ASP	Anthony	Smith	Pediatric
RTP	Rose	Taylor	Psychiatry
SSG	Sam	Sanchez	General
PMP	Peter	Martin	Pediatric
ASR	Anne	Smith	Radiology
RMA	Rose	Martin	Analysis
BTI	Bart	Taylor	Intensive
API	Anne	Pons	Intensive
SFS	Sam	Flanders	Ophtamology
BSO	Bart	Smith	Ophtamology
RRG	Rose	Red	Gynecology

6 Introduce the following data to the Admissions table.

Entry Number	Entry Room	Entry Bed	Entry Date	Patient	Doctor
1	101	A	04/23/98	300	RTP
2	105	A	05/24/98	103	RTP
3	125	B	06/15/98	300	RTP
4	204	B	12/09/98	120	SSG
5	205	B	12/10/98	100	SSG
6	204	A	04/01/99	102	SSG
7	201	A	01/02/99	240	SSG
8	201	A	02/04/00	110	SSG
9	305	A	03/05/00	131	API
10	304	B	12/05/00	201	BTI
11	306	A	13/05/00	201	API
12	303	B	06/15/00	220	BTI
13	302	A	06/16/00	131	BTI
14	504	B	06/30/00	130	BSO
15	504	B	02/07/00	231	SFS
16	405	B	05/07/00	207	PMP
17	401	A	08/08/00	220	PMP
18	408	B	10/08/00	207	ASP
19	504	A	12/08/00	120	BSO
20	509	B	08/20/00	240	SFS

7 Close the database.

If you are unsure of how to perform any of the previous exercises, Here we will explain them to you.

Unit 6 evaluation test. Relationships

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the answers.
If you press Reset you will be able to repeat the evaluation.

1. The relationships most frequently defined are one-to-many relationships.
 a) True.

 b) False.

2. We can use any kind of field to relate two tables.
 a) True.

 b) False.
3. Once we have some tables in the Relationships window, we can not add more tables.
 a) True.

 b) False.

4. La primary key will normally be one of the related fields between two tables.
 a) True.

 b) False.
5. If I delete a table from the Relationships window all of its associated relationships are deleted from the database.
 a) True.

 b) False.
6. The  button serves to...
 a) ... visualize all the relationships associated to a table.

 b) ... visualize all defined relationships within a database.
 c) ... add a relationship.
7. The  button serves to....
 a) ... delete a relationship from the database.

 b) ... leave the Relationships window blank.

 c) ... remove a relationship from the Relationship window without deleting it from the database.
8. Every time I want to define a new relationship between two tables...
 a) ... I need to add these tables to the Relationships window.

 b) .. only add the tables if they are not already in the window.

 c) ... there is no need to add them as they are always in the window.

9. Referential Integrity is...
 a) ... a rule that obligate that once a record is deleted from the primary table, the related records are deleted from the related table.

 b) ... a rule that enables it so that on editing a record in a table, it is edited in the other table as well.

 c) Both of the previous answers are true.

 d) All three answers are false.

10. To be able to define a relationship...
 a) ... the two related fields must be the same data type.

 b) ...the two fields that intervene in the relationship must have the same name.

 c) Both of the previous answers are true.

 d) All three answers are false.
Bottom of Form

Unit 7. Queries (I)

In this unit we will learn how to create queries and how to use them to edit records in tables created in Access2003.

Types of queries.

Queries are those objects in a database that allow us to view, change, and arrange data stored in tables.

We can also use them as the source of records for forms and reports.
Various types of queries exist:

- Select queries.

These are the queries that extract or show us data. They will show data that complies with specific criteria.
Once we have the result we can consult the data and edit it (this can or cannot be done, depending on the query). A select query generates a logical table (named this way because it is not actually in the hard drive but in the memory of the computer, and every time we open it is recalculated).
This is the most common type of query.

- Action queries.

These are the queries that carry out changes to the records. Various types of action queries exist to delete, update, insert data, and to create a new table from one existing table. These queries are named delete queries, update queries, append queries and Make-Table queries. We will study them in unit 10.

- Crosstab queries.

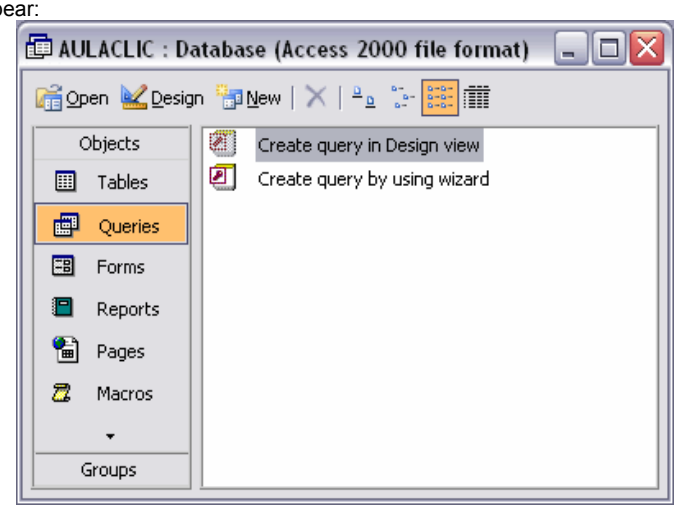
We use these queries to calculate and restructure data for easier analysis. Crosstab queries calculate a count, average, sum, or other type of total for data that is grouped by two types of information (two fields), one down the left side of the datasheet and another across the top.

- SQL queries.

When we want some action to be made on the data, we must tell Microsoft Jet engine to do it. SQL is the language that Microsoft jet engine understands and permits us to comunicate to it.
When you create a query in Query Design View, Access constructs the equivalent SQL statement behind the scenes for you. If you want, you can view and edit the SQL statement in SQL view.
After you make changes to the query in SQL view, the Query Design view will change and adapt to the new SQL sentence. However, sometimes, query might not be displayed in Query Design view because of the SQL sentence.
There is some statements that can not be defined from the Query Design View but rather directly in SQL, these are SQL-specific queries.
These queries will not be studies in this course as in order to define them knowledge of SQL is necessary, which is not part of the objective of this course.

Creating a query. 

To create a query, follow the next steps:
Open the database where the query will be created.
Click on the Queries object found on the left lateral of the Database window.
This is the screen that will appear:



Later we have 3 alternatives:

- Double click on the Create query by using wizard option.

In this case the wizard window will open in which we are asked from which table we choose to extract the data, the fields we wish to visualize and the title of the query, next it will automatically generate the corresponding query.

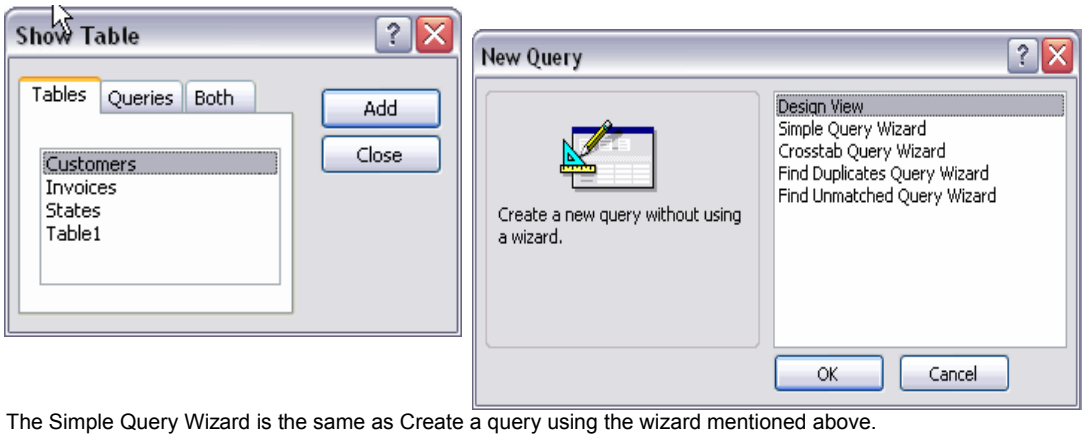
- Double click on Create query in Design view.

In this case the Query design window will open on which we will elaborate further on, and within which we can define our query in more detail.

- Click on the 

button in the Database window.

The following dialogue box will appear:



The Simple Query Wizard is the same as Create a query using the wizard mentioned above.
The other wizards permit us to generate special types of queries. In Unit 9 we will study the Crosstab Query Wizard.
The Design view option has the same effect as the Create a query in Design view. This is the option we will explain next.

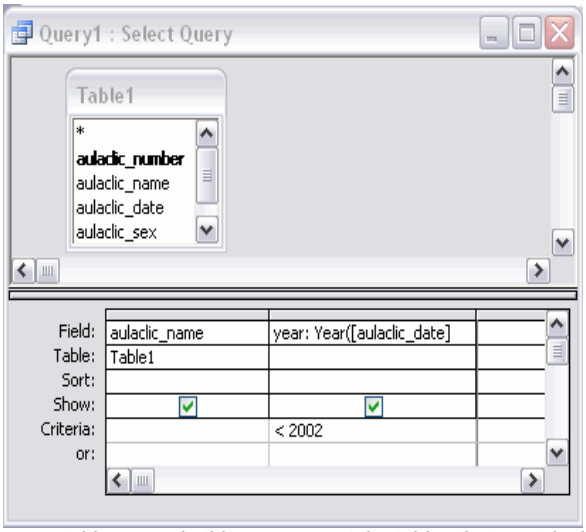
On entering the Query design we are firstly asked for which tables the query should extract the data from:

Select the table from which we wish to extract the data and click on the Add button (or double-clik on its name).
If we wish to extract data from another query, click on Queries tab an select it.
If we wish to extract data from various tables we should continue in the same manner.
Finally click on the Close button.
The query Design view window will appear.

To continue go to the next page...

Unit 7. Queries (II)

The Design view.



If we look at the screen above, we have a tables area, in this area we put the tables that contain the data we need or we want to see in the result of the query, and in the part below named the QBE grid we define the query.
Every column in the QBE grid corresponds to a field.
Every row has a function:
Field: here we place the field to use which will usually be the field to visualize, it could be a field from the table or a calculated field.
Table: name of the table we want to extract the field from. This will be usefull when we are defining queries based on various tables.
Sort: serves to arrange the resulting rows in a determinated order.
Show: if not marked, the column does not appear in the result, it is usually unmarked when we want to use the field to define the query but don't want the field to appear in the result.
E.g if we want the query to extract all the students from Denver we need the City field to select the students, but we do not want the city to appear in the result as we know that they are all from the same city that is Denver.
Criteria: serve to specify the lookup criteria. A lookup criteria is a condition that records need to comply with to appear in the result of the query. It can be made up from one or from various conditions, joined by AND and OR operators.
or: this row and those after are used to make multiple-conditions.

Adding fields

To add fields to the QBE grid we can:

- Double click on the name of the field appearing in the tables area, this will be placed in the first vacant column of the QBE grid.
- click on the name of the field, and drag it to the grid, over the column in front of which we want to leave the field that we are adding.
- Click on the Field: row of an empty column in the grid, an arrow will appear to the right with a drop down list with all the fields from all the tables that appear in the tables area. If we have many fields and various tables we can reduce the list by first selecting a table from the Table: row, this way only fields from this selected table will appear.
- We can also type the name of the field directly in the Field: row of an empty column in the grid.
- If we want all the fields from the table to appear in the result of the query we can use the asterisk * (synonymous with 'all the fields'). Selecting the asterisk has an advantage over selecting all the fields: When you use the asterisk, the query results automatically include any fields that are added to the underlying table after the query is created, and automatically exclude fields that are deleted.

Defining calculated fields

Calculated fields are obtained from the result of an expression.

If you would like to know more about how to form expressions, clic here .

Column headings

The column heading usually contains the name of the column, but we can change the headings of columns in order to make the result of the query clearer.
If we want to change this heading we must indicate this in the Field: row, writing it in front of the name of the field and followed by a colon (:). These are usually used for calculated fields. In the query that appears above you have an example in the second column, this one will have Year in the heading, and in the column we will see the year of the date of birth (we have a calculated field that uses the year() function, the function that obtains the year of a date).

Changing the order of the fields

If we want to change the order of fields that have been included in the grid we can move a column (or various) either by dragging it or by cutting and pasting it.

- To move a column by dragging it:

Position the cursor over the extreme top part of the column and when the arrow  appears clic, and the column will appear standing out (it is selected).

Move the cursor slightly so that the  arrow appears. Press the mouse button and mantaining it down, drag the column to the desired position.

- To move a column by cutting it: Select the column (position the cursor over the extreme top part of the column and when the arrow  appears clic).

Click on the button (or select the Cut option from the Edit menu, or, press Ctrl+X), the column will disappear.
Next create a column in blank in the position where we want to move the column that we have cut with the Columns option from the Insert menu.

Select this column and click on the button (or select the Paste option from the Edit menu, or, press Ctrl+V).
We can select various consecutive columns by selecting the first and maintaining the Shift key depressed, selecting the last column to select, both these columns and any found between them will be selected.
Unit 7. Queries (III)

Saving the query

We can Save the query

- clicking on the button on the toolbar,

or,

- Selecting the Save option from the File menu.

If it is the first time we are saving the query a dialogue box will appear to give it a name.
Any name can be given except for the name of an existing table.
Next click on the OK button.

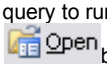
To close the query click on the button.

Running a query

We can run the query from the Query design window or from the Database window.

From the Database window:

Firstly select the query to run by clicking on it.

Next click on the 

button in the database window.

From the design view of the query:

Click on the  button on the toolbar.

When the query is a select query, we can also click on  button (Datasheet view)

When we are visualizing the result of a query, what we are really seeing is that part of the table which has complied with specific criteria, and so if we edit any data in the query that appears, we will be editing the data in the table (except for a few queries which do not permit updates).

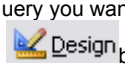
To practice you can perform the Step by step exercise Creating simple queries.

Modifying the query design

If we want to modify the design of a query:

Situate yourself in the Database window, in the Queries object,

Select the query you want to modify by clicking on it.

Click on the 

button.

Unit 7. Queries (IV)

Ordering rows

To sort the rows in the result of the query we use the Sort: row in QBE grid.

Click in the Sort: row on the field, in which you wish to arrange the rows, then select from the drop down list if you want the rows appear in ascending or descending order.

If you choose Ascending, rows will be arranged from less to more if the field is numeric, in alphabetical order if the field is Text type, from earlier to later if the field is datetime type; with Descending rows will be arranged in reverse order.

We can also perform complex sorts . This means we can sort records by several fields and sort in ascending order by some fields and in descending order by others.

When we assign order to severals columns (fields) the rows will be sorted by the first ordered column, for the same value in this column, they are sorted by the second ordered column, and successively.That is, if we want to sort by State and within the same State by City, we need firstly the State column and then the City column in the QBE Grid, and each of them with the ordering mode we want for it. The ordering mode is independant and so a different ordenation can be used for each column. E.g ascending for the State column, and then descending for the City column.

Selecting rows

When we recover data from a table we can recover all the rows or only certains.

To limit the result to several rows we must specify a criteria (a condition) that limits the results to records that match this criteria.

Criteria: row serves to that purpose.

For example, we want to see the students that live in "Denver", so the rows we want must match the condition City = "Denver" . So we will add a criteria to the QBE grid in City field typing the rest of the condition (="Denver") in Criteria: row.

When a condition is an equality it is not necessary to type = sign, we can type the Denver value directly in the Criteria: row, as if we do not put an operator Access assumes an = by default.

In the Criteria: row we can type a field name (to compare two fields with each other) in this case we need to enclose the field name in brackets []. E.g we want to make the condition cost = price in which price and cost are two fields, in Cost column we will type [price] in the criteria row.

We can combine several conditions with AND and OR operators.

In a search criteria in which the conditions are combined with AND operator, records must to comply with all the conditions to appear in the result. E.g price > 100 and price < 1200, all the records with a price of between 101 and 1199 will appear.

In a search criteria in which the conditions are combined with OR operator, a record will appear in the result if it complies with at least one of the conditions.

All the conditions established in the same row of the grid are combined with an AND operator.

In the next example the criteria built is aulaclic_state = "CA" AND aulaclic_date between #01/01/2000# and #07/14/2005#

Field:	aulaclic_name	aulaclic_state	aulaclic_date
Table:	Table1	Table1	Table1
Sort:			
Show:	☑	☑	☑
Criteria:		"CA"	#1/1/2000# And #7/14/2005#
or:			

When we type criteria in the same column but in more than one Criteria cell (using the 0: rows and those following), Microsoft Access combines them using the OR operator.
E.g, if we have the following criteria specified in the QBE grid:

Field:	aulaclic_name	aulaclic_state	aulaclic_date
Table:	Table1	Table1	Table1
Sort:			
Show:	☑	☑	☑
Criteria:		"CA"	#1/1/2000# And #7/14/2005#
or:		"NY"	

We will visualize the Name, State and Date of the Table1 table records, but only those (from CA and date between 01/01/2000 and 07/14/2005), or those from NY with any date.

Be Advised! The date criteria only combine the the CA state criteria because it is located in the same row.

If you want to know more about the condition operators, click here .

To practice these operations you can perform the Step by step exercise in creating queries.

Unit 7. Queries (V)

Multitable Queries 

A multitable query is a query that obtains data from various tables and therefore needs to contain these various tables in the Tables area in the Design window.
To add a table to the Tables area we can (once we are in the Query design window):

- drop down the Query menu and select the Show table option.

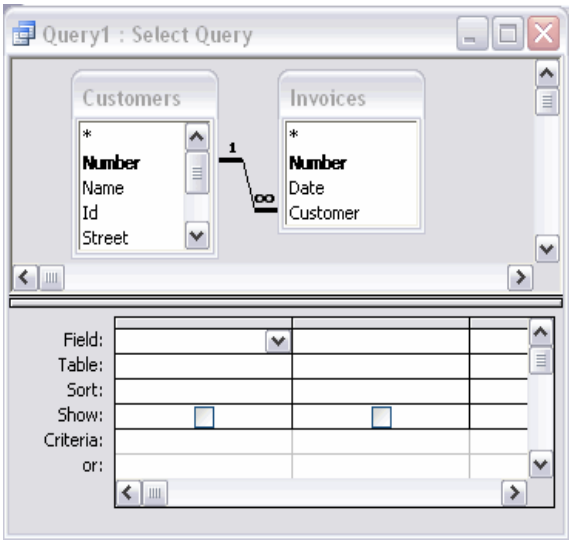
or,

- Click on the  button on the toolbar.

If the tables are not related or do not have any fields with the same name, the query obtains the concatenation from all the rows in the first table with all the rows from the second table, if we have a third table it will link up every one of the rows obtained in the first step with every one of the rows in the third table, and so successively. Basing the query on many tables, the result of the concatenation could achieve gigantic proportions!!
Furthermore, the majority of concatenations obtained normally are of no use to us and so we need to add a search criteria to select the rows that actually interest us. E.g I might be interested in data from the Students table and from the Courses table because I want to extract a list of courses with the course data and the name of all students of each course; in this case, I am not interested in linking the courses to every student, but rather linking it to its students; in this case we need to join the two tables.

Joining tables

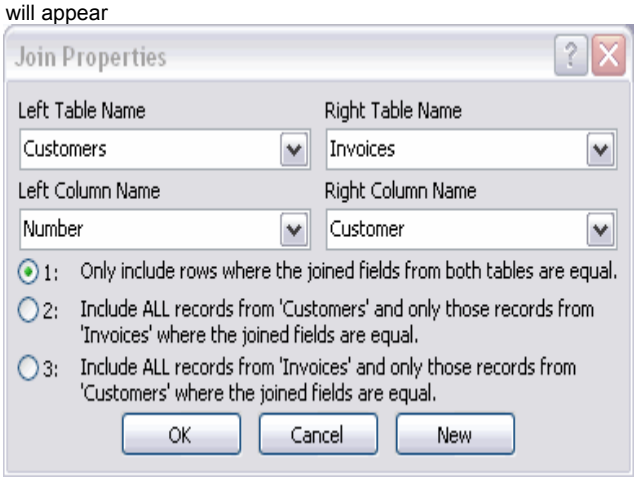
In queries, we join two tables using a common field (or various) in the same way as we relate tables in the Relationships window by dragging the related field of one table over the another related field.
The tables are also joined automatically when a relationship exists between them.
When the tables are joined they appear in the following way in the design view:



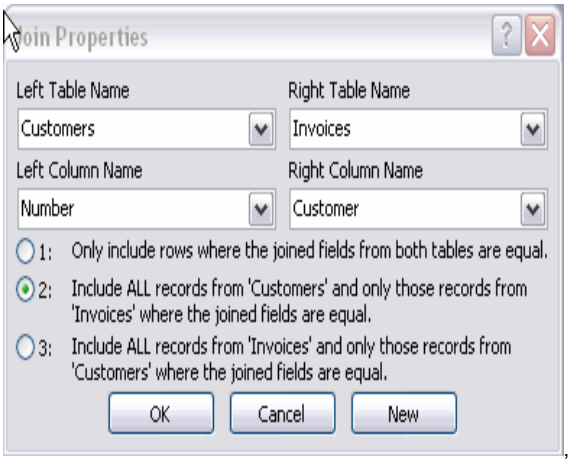
When two tables are joined in a query, for every row in one of the table, Access directly searches in the other table for rows with the same value in the related field, and concatenate the two rows, so the query is more efficient.
This type of join operation is an internal join as all the values in the result are obtaindes from rows that exists in the tables joined.
With an internal join it will only obtain those rows that have at least one row in the other table that matches, lets look at an example:
In the Customers list mentioned earlier no customer without an assigned invoice will appear.
Well, in the case that we do want the rows without a matching row in the other table to appear as well, we use the External join.

The external join

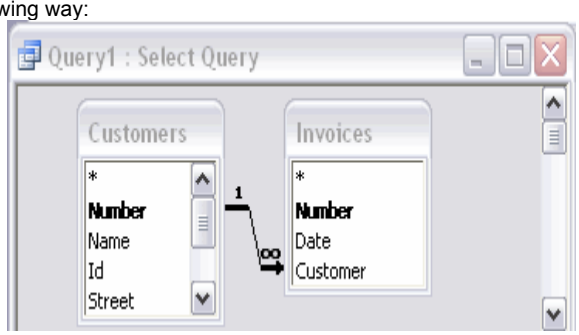
The external join is used when we want the rows without a matching row in the other table to appear as well.
This type of relationship is defined in the following way:
Add the tables to the table area of the query.
Join the two tables by the related fields:
Double click on the line that relate the two tables
The Join properties dialogue box will appear



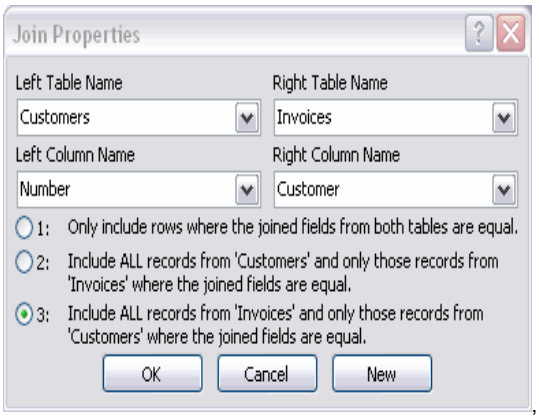
The join is internal by default (only the rows that have matching rows in the other table are included), if we want to define an external join we need to select option 2 or 3 depending on what we want to obtain.
If we select option 2,



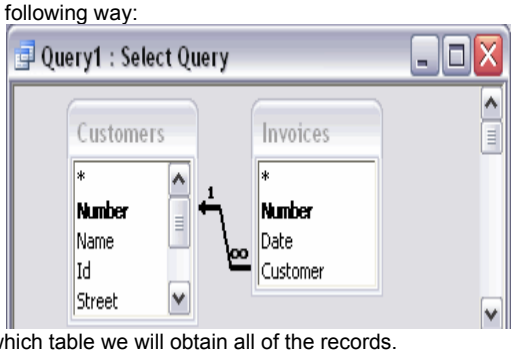
the join will appear to us in the following way:



If we select option 3



the combination will appear to us in the following way:



The origin of the arrow indicates from which table we will obtain all of the records.

To practice you can perform the Step by step exercise in creating multitables.

Unit 7 exercises. Queries

If Access is not open, open it in order to be able to carry out the following exercises.

Exercise 1: Cars

1 Open the Cars database from My exercises folder.
2 Create a query to visualize only the License, Make, and Model of the Sold Cars, name it Sold cars query.
3 Edit the previous query and add the price, and only visualize those cars that are Ford, save the query with the name Ford cars.
4 Edit the previous query to visualize those that are Ford, and that have a price superior to 16000, name it Ford superiors.
5 Create a query to see the surnames and cities of those clients that have bought a Ford or a Audi, the clients should appear in alphabetical order within each city. Name the query Ford and Audi clients.
6 Close the database.

Exercise 2: Clinic

1 Open the Clinic database from My exercises folder.
2 Create a query to see the surnames, addresses, and date of birth of those patients who were born before 1960 and whose postal code is 78767, name the query: Patients from 78767.
3 Create a query to see those patients whose admittance date was before the 12/31/98, their surnames, date of birth, admittance date, and surname of the doctor assigned to them as well as his speciality, save the query as Patients with doctor.
4 Close the database.

If you are unsure of how to perform any of these operations, we will explain them to you Here .

Unit 7 evaluation test. Queries

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the answers.
If you press Reset you will be able to repeat the evaluation.

1. A query allows us to select data from tables or from another query.
 a) True.

 b) False.

2. If we change any data from the result of the query, this data will also be changed in the source table.
 a) True.

 b) False.
3. The rows in a query can be sorted into more than one field.
 a) True.

 b) False.

4. A query can be based on more than one table.
 a) True.

 b) False.
5. In order to use a field in a search criteria, this must be seen in the result of the query.
 a) True.

 b) False.
6. The  button serves to...
 a) ...execute the query.

 b) ...access the help window.

 c) ...change the type of query.
7. If in the tables area there are two tables not combined...
 a) ... impossible, tables always appear joined.

 b) ... I obtain all the possible combinations of the rows in the two tables.

8. If an arrow appears between the two tables in the tables areas...
 a) ...the result will include all the records of the table that receive the arrow.

 b) ...the result will include all the records of the table where the arrow begins.

 c) ...impossible, an arrow can not appear.

9. To express two conditions using AND operator.
 a) Both conditions need to be written in the same Criteria: row

 b) Both conditions need to be written in different Criteria: rows.

 c) Both answers are correct.

 d) All three answers are false.
10. If I want to use wildcard characters in a condition...
 a) ... its not possible.

 b) ... I must type the wildcard character into brackets.

 c) ...I must use the LIKE operator.

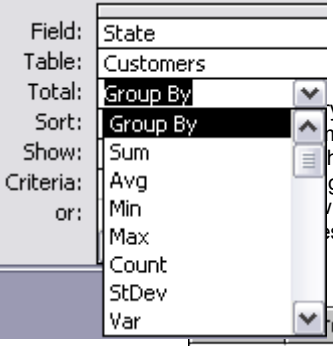
 d) ...I do not need to do anything special.

Bottom of Form

nit 8. Summary queries (I)

Definition 

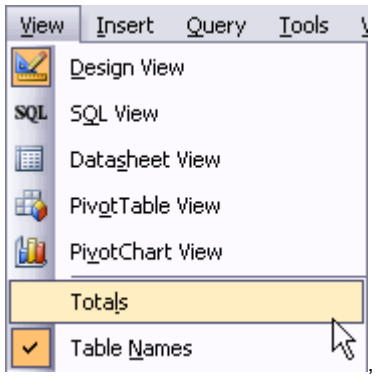
In Access we can define a special query to calculate totals on the records of a table (or various tables related). In order to obtain those totals we use summary functions so it is why we call them summary queries.
It is important to remember that the resulting rows of a summary query have a distinct nature to the rest of the rows resulting from queries as each row corresponds to various rows in the source table.



y' query row corresponds to a row in the source table and contains data found in just one row of the source, whilst a
mmary query corresponds to the summary of various rows from the source table, this difference is the origin of a series
hat the summary queries suffer as we will see later. For example, this type of query does not permit us to edit the data.
ge we have an example of a normal query in which one visualizes the rows of a table of offices sorted by area, in this
of the result corresponds to just one row in the offices table, while the second query is a summary query, every row of
sponds to one or various rows in the offices table.

	ea	sales
24	center	150.000
23	center	
28	eastern	0
13	eastern	368.000
12	eastern	735.000
11	eastern	693.000
26	north	
22	western	186.000
21	western	836.000

area	total sales
center	150000
eastern	1796000
north	
western	1022000



We create a summary query by selecting the Totals option in the View menu , or by clicking on the Σ button on the toolbar.
In either case a row is added to the QBE grid, the Total: row.
All the columns that we include in the grid should have a value in this row, this value indicates to Access what to do with the values contained in the field written in the Field: row.
The values that we can indicate in the Total: row are those that appear in the drop down list associated with this cell as we see in the image to the right.

The summary functions

The summary functions are functions that allow us to obtain a result based on the values contained in one column of a table and they can only be used in a summary query.
To use these functions we can write them directly in the Field: row of the grid as we will see ahead, but we can also use a simpler method which is selecting from Total: row in the grid the option corresponding the function.
Next we will describe these options.

- The Sum function calculates the sum of the values indicated in this field. The data being added up need to be numeric type (integer, decimal, or currency...). The result will be the same type though might have a higher accuracy.

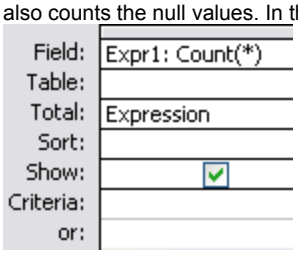
- The Avg function calculates the average of the values contained in the field being summarized. It also applies to numeric data, and in this case the type of data in the result can change depending on the systems necessities in represent the value of the result.
- The StDev function calculates the Standard deviation of the values contained in the column, assuming the values are a sample of a larger population. If the query source has less than two records, the result is null.

- The Var function calculates the variance of the values contained in the column. If the query source has less than two records, the result is null.
It is interesting to distinguish that the null value is not the equivalent of 0, the summary functions do not consider null values while they consider the 0 value as a value, therefore in the average and the standard deviation the results will not be the same with 0 values as with null values.
- The Min and Max functions determine the smallest and the largest value of the column. The values in the column can be numeric, text or date. the result of the function will have the same type of data as the column. If the column is numeric, Min will return the smallest value contained in the column, if the column is text type, Min will return the first value in alphabetical order, if the column is

date type, Min will return the oldest date and Max the latest.

- The First and Last functions are used to obtain the first and last record of the group that is being calculated. Sorting the records does not have any effect on the result of these functions, Access will allways consider the cronological order in the records were created.
- The Count function counts the number of values in a column, the data can be of any kind, and the function always returns a integer number. If the column contains null values these values are not counted, if a value is repeated in a column, it is counted various times.

In order for the number of records to be counted the Count(*) function needs to be used, it returns the number of rows and therefore also counts the null values. In this case we need to select the Expression option and write it like this:



To continue with this unit go to the next page...

Unit 8. Summary queries (II)

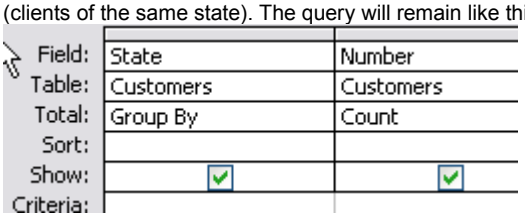
Grouping records

Until now the summary queries that we have seen use all the rows of the table and produce just one resulting row.

- The Group by option allows us to define grouping fields. A summary query without grouping fields obtains only one resulting row and the calculations are performed on all the source records.

When a grouping field is included, Access forms groups with all the records that have the same value in the grouping field and every group formed this way generates a row in the result of the query, furtharmore, the defined calculations are carried out on the records of every group. In this way Subtotals can be obtained

E.g if we want to know how many customers we have in each state we need to indicate that we want to count the records of the Customers table but firstly grouping them by the State field. In this way the count() function will calculate on every group of records (clients of the same state). The query will remain like this:



The memo and OLE type fields can not be defined as grouping field.

- Rows can be grouped by up to 10 fields, in this case the order of the field names determines the grouping levels from the highest to the lowest level of grouping.

- All the rows that have a null value in the grouping column form a single group.

Including expressions

- An Expression option allows us to put an expression instead of a field name in the Field: row. This expression has certain limitations.

It can only contain field names with an aggregate function (the functions we just looked at (sum(), Avg(), StDev(), Min(), Max()...), fixed values or names of columns that appear with the Group by option.

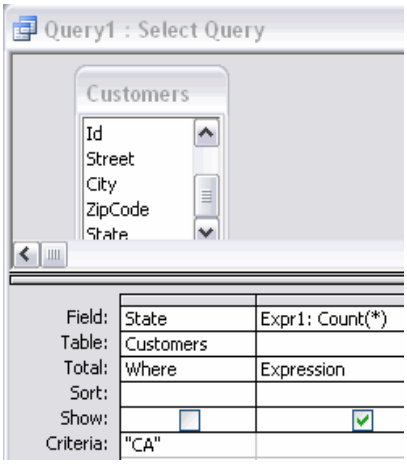
An expression can combine various aggregate functions, but it is not possible to nest aggregate functions, e.g an expression could be Max(hours)-Min(hours) but not Max(sum(hours)).

Including search criteria.

- The Where option allows a search criteria to be placed which is applied on the source rows of the query before performing the calculations.

For the search criteria, the same operators as in a normal query can be used, multiple conditions can also be written (joined by the Or, AND,NOT operators).

E.g we want to know how many customers we have in California, for this we need to count the records from the Customers table but previousely selecting those from California (State="CA"), this is defined in the following way:



We can also include a search criteria in a column that does not have a Where option, in this case the condition will be applied on the resulting rows.
For the selection condition the same operators as in a normal query can be used, multiple conditions can also be written (joined by the Or, AND,NOT operators), a limitation exists in the Criteria: row, the name of a column can not be put down if this column is not a grouping field.

To practice you can perform the Step by step exercise in creating summary queries

Unit 8 exercises . Summary queries

If Access is not open, open it in order to be able to carry out the following exercises.

Exercise 1: Cars

Create in the Cars database:
1 A query to know how many cars have been sold, how much money they cost, and the average sale amount.
Audi Cars should not be counted, name the query Summary without Audi.
2 A query to know how many services we have with oil changes, how many with filter changes, and how many changes of brakes, name it Summary Services.

Exercise 2: Clinic

Create in the Clinic database:
1 A query to know the doctors that have more than three admissions, indicating for each one of these the name and surname of the each doctor, and how many admissions they have. Name the query Saturated doctors.
2 A query to know the oldest admission date within each speciality. Name the query Oldest admissions.

If you are unsure of how to perform any of the operations in the previous exercises, we will explain them to you Here

Unit 8 evaluation test. Summary queries

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the answers.
If you press Reset you will be able to repeat the evaluation.

1. A summary query allows us to see the rows contained in a table and at the end a new row with totals.
 a) True.

 b) False.

2. If we edit any of the data resulting from a summary query, this data will also be edited in the source table.
 a) True.

 b) False.

3. The Min value of a date type column would be the oldest date.
 a) True.

 b) False.

4. A summary query can be defined from more than one table.
 a) True.

 b) False.
5. When the average of a column is being calculated, the null values count as zero values.
 a) True.

 b) False.

6. The  button serves to...
 a) ...total a column.

 b) ...add a Total: row to the query.

 c) ...add a new table to the query.
7. To select the source rows of a summary query....
 a) ...Impossible, it always picks all the source rows.

 b) ...in the column that contains the search criteria, the Total: row contains Where value.

 c) ...in the column that contains the search criteria, the Total: row contains Expression value.

8. If we group by way of two columns...
 a) ..we will obtain two resulting rows.

 b) ...we will obtain a number of rows according to the values contained in the columns.

 c) ...impossible, it can not goup by way of two columns.

9. In a column of the QBE grid of a summary query...
 a) ...total(amount)/avg(price) can not be written in the Field: row.

 b) ...total(avg(amount)) can not be written in the Field: row.

 c) Both the previous answers are correct.

 d) All three answers are false.
10. A summary query obtains only one resulting row at most...
 a) ...if there are no group columns.

 b) ...only if the source table has only one row.

 c) ...depending on how many rows the source table has.

 d) All three answers are valid.

Bottom of Form

Unit 9. Crosstab queries (I)

Introduction

A crosstab query is used when we want to represent a summary query with two grouping columns like a double input table, in which each one of the group columns is an entry, one down the left side of the datasheet and the other across the top.

E.g we want to obtain the monthly sales of our employees from their sold orders. We need to design a summary query that calculates the sum of the amount of orders grouped by employee and month of sale.

The query will be much more elegant and clear, presenting the data in a more compact form as we see next:

Agent	1	2	3	4	6	7
101	26478			150		
102		3750	1896		2130	
103		2100				
106	31500					
107				652		2430
108	2925			1536		53520
109		5625				1480
110	22500					

Agent	Month	Sales
101	1	26478
101	4	150
102	2	3750
102	3	1896
102	6	2130
103	2	2100
103	11	600
106	1	31500
106	12	1458
107	4	652
107	7	2430
107	8	31350
108	1	2925
108	4	1536
108	7	53520
108	8	652
108	10	15000
109	2	5625
109	7	1480
110	1	22500
110	11	632

Well this last result is obtained by way of a crosstab query. Observe ns (Agent) defines the rows that appear (there is a row for each agent), whilst the other grouping co ne the columns, each month value defines a column in the result, and the convergence cell of a is the summary column, the one that contains the summary function (the sum of the sales).
Crosstab queries can be created from the design view but it is faste sard.

To continue with this Unit go to the next page...

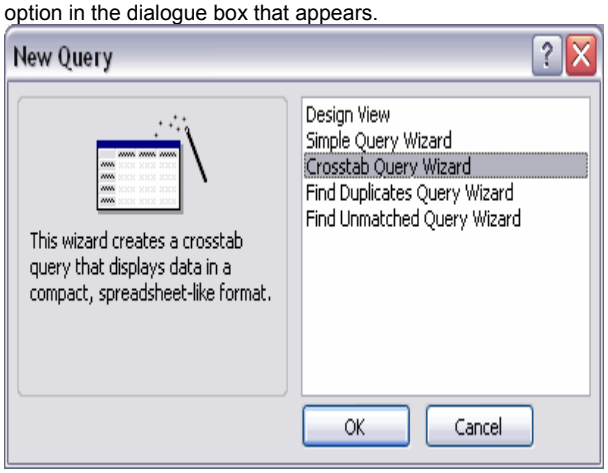
Unit 9. Crosstab queries (II)

The crosstab query wizard.

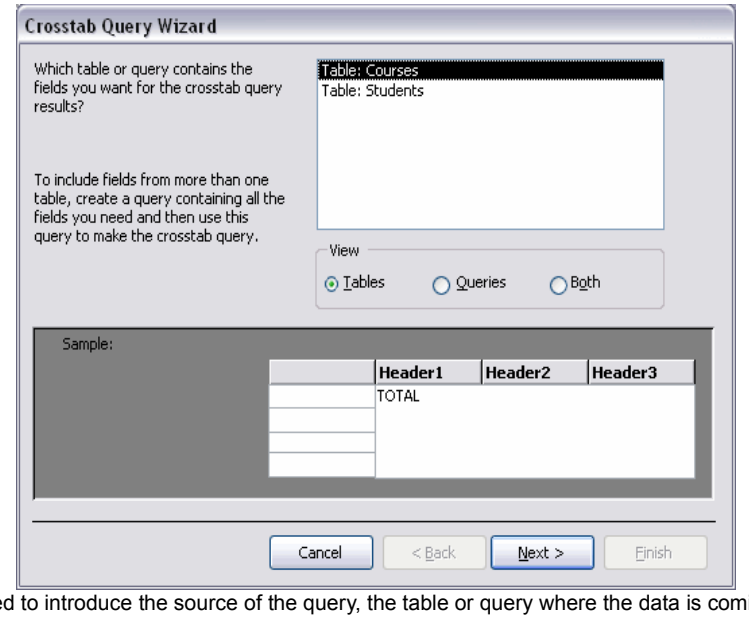
To start the crosstab query Wizard we need to be in the Database window in the Queries object.

- click on the New button in the Database window.

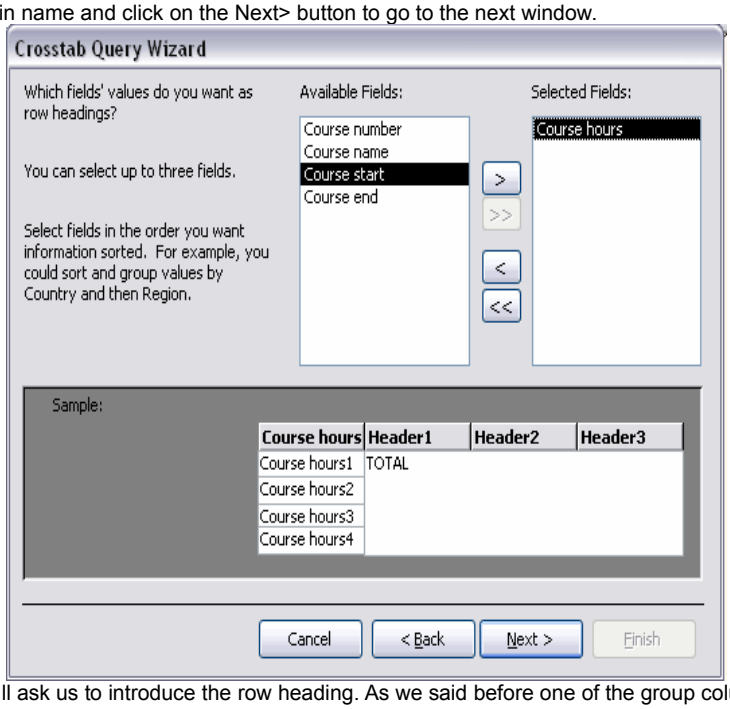
Select the Crosstab Query Wizard option in the dialogue box that appears.



The first window of the wizard will appear:



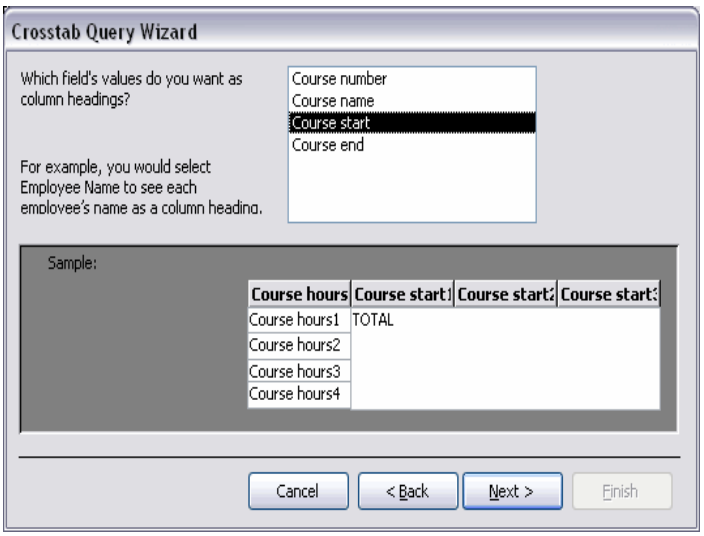
In this window we are asked to introduce the source of the query, the table or query where the data is coming from.
In the View section we can select whether we want to see the list of all the Tables, all the Queries, or Both.
If the query that we are creating needs to extract the data from all the records in just one table we use this table as the source, if this is not the case we need to define a normal query that combines the various tables, and this query will be the source of the crosstab query.
We click on the chosen origin name and click on the Next> button to go to the next window.



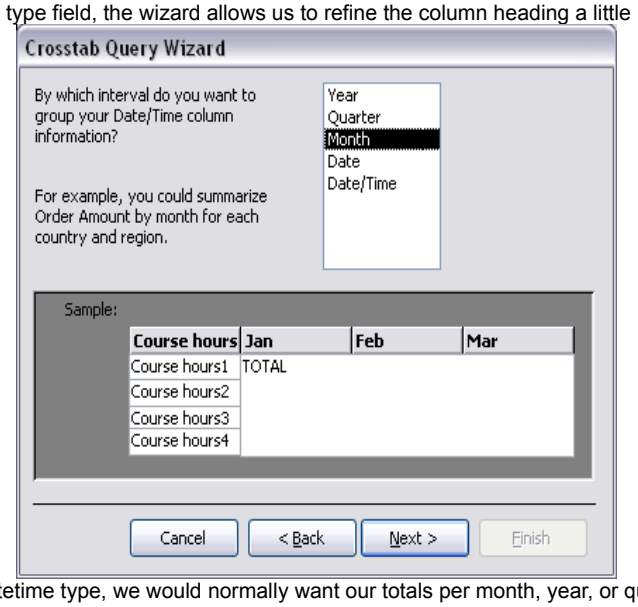
In this window the wizard will ask us to introduce the row heading. As we said before one of the group columns serves as the row heading and the other as the column header. If one of these columns could contain many different values and another very few, we will select the first as row header and the second as column header

To select a row header, click on the field and then on the button. On the transfer of the field to the Selected fields: list, an example of the result will appear in the bottom zone of the window; we have selected the Course hours field and we see that in the query a row appears for every different value in the Course hours field.

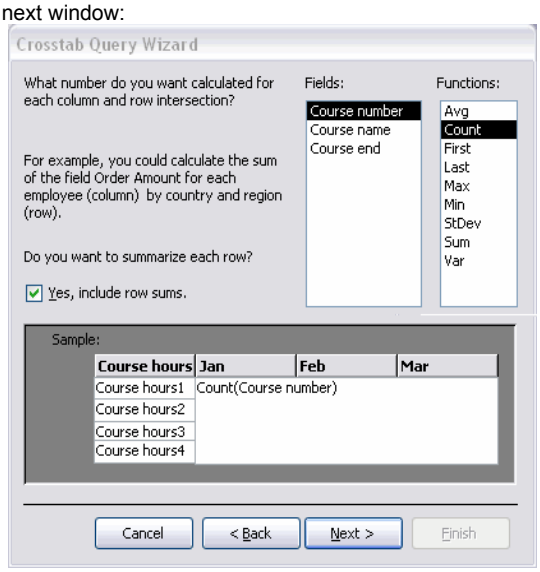
If we made a mistake with the field click on the button and the field will be removed from the list.
We can select up to three fields. If we select various fields there will appear in the result of the query as many rows as what there are different value combinations of these three source fields.
The buttons with double arrows are to send all the fields over in one go.
Next we click on the Next> button and the window that we will see on the next page will appear...



In this window the wizard asks us to introduce the column heading. Only here may we select one field, and for every different existing value in the source, generate a column with this value as the column header.
In the lower part of the window the result can be seen, we see that by selecting the Course start field, a separate column for each value found in the Course start column of the Courses table will appear in the result of the query.
As we have selected as datetime type field, the wizard allows us to refine the column heading a little more in the following window:

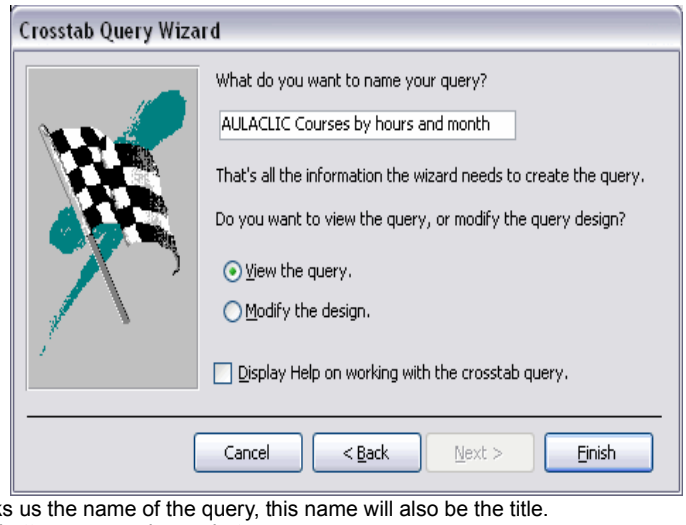


When the column header has datetime type, we would normally want our totals per month, year, or quarter rather than per every date, and so the wizard asks us in this window what kind of grouping we want. E.g we have selected the Month interval, well then in the result, a column will appear for every month instead of one for every separate date. Here we can also access the result in bottom zone of the window.
Click on the Next> button to go to the next window:



In this window we are asked which value should be calculated in the column and row intersection.
In the Functions: list we select the summary function that will be used to this value to be calculated, and in the Field: list we select the field on which the summary function will be performed. E.g We have selected the Course number field and the Count function, therefore we will have the number of courses started in every month as a number of hours
If you have any doubts over the summary functions, revise the Summary queries Unit.
The wizard also permits us to add a summary column to the datasheet, this column contains the sum of the values contained in the row. In our example we will be given the total number of courses with the nº of hours of the row. In order for the wizard to add this column we need to check the Yes, include row sums box
After this, click on the Next> button and we arrive at the last window of the wizard as we will see on the next page...

Unit 9. Crosstab queries (IV)



In this window the wizard asks us the name of the query, this name will also be the title.
Before clicking on the Finish button we can choose between:

- View the query in this case we view the result of the query, for example:

AULACLIC Courses by hours and month : Crosstab Query

Course hours	Total Of Course	Jan	Feb	Mar	Apr	May
15	4	1				
30	20	1		3	1	

or,

- Modify the design, if we select this option the Query design view will appear we will be able to modify the definition of the query.

Design view

Field:	Course hours	Expr1: Format([Course start],"mmm")	Course number	Total Of Course number: Course number
Table:	Courses		Courses	Courses
Total:	Group By	Group By	Count	Count
Crosstab:	Row Heading	Column Heading	Value	Row Heading
Sort:				

The design view of a crosstab query is very similar to a summary query with an added row in the grid, the Crosstab: row.
This new row serves to define the concepts that we have seen with the wizard. We do not normally need to change the design, if perhaps the title of the columns.

- To practice you can perform Step by step creating crosstab queries.

Unit 9 exercise. Crosstab queries

If Access is not open, open it in order to be able to carry out the following exercises.

Exercise 1: Cars

Create a query in the Cars database in My exercises folder to obtain a crosstab query to know for each make, how many cars were sold in each colour, and also the total sold of each make should appear. Name it Cross make-colour.

Exercise 2: Clinic

Create a query in the Clinic database in the My exercises folder to obtain a crosstab query to know how many admissions in every speciality we have in each city. Name it Cross Entries-Patients-Doctors.

If you are unsure of how to perform any of the previous exercises we will explain them to you Here .

Unit 9 evaluation test. Crosstab queries

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the answers.
If you press Reset you will be able to repeat the evaluation.

1. Crosstab queries can only be defined with the wizard.
 a) True.

 b) False.

2. In the central cells (intersection) we put a summary function as we would in a summary query.
 a) True.

 b) False.
3. If the header column is a datetime field, then the wizard permits me to group by year, by month, etc...
 a) True.

 b) False.
4. We can put various fields as row header.
 a) True.

 b) False.
5. We can put various fields as column header.
 a) True.

 b) False.
6. The  button serves to...
 a) ...create a new table.

 b) ...start the cosstab query assistant.

 c) Neither of the previous answers.
7. If we want to obtain a crosstab query in which one entry is the name of my students, and the other the three tests on a course.
 a) ...select the student name as row header.

 b) ...select the student name as column header.

 c) ...its indifferent, select it as the row or column header.

8. Using the wizard, a crosstab query can have a source based on various tables...
 a) ...no, never.

 b) ...if we select the tables in the first window of the wizard.

 c) ...only if I have a query based on these tables.

9. The wizard allows us to add a summary column that summarises the values of the columns generated by the column header for each row....
 a) No.

 b) ...if we check Yes, include row sums box.

 c) ...if we uncheck Yes, include row sums box.

 d) ...if I select the Total function when defining the central cells.

10. In the QBE grid of a crosstab query appears...
 a) ...a Total: row and a Crosstab:row.

 b) ...only a Total: row.

 c) ...only a Crosstab: row.

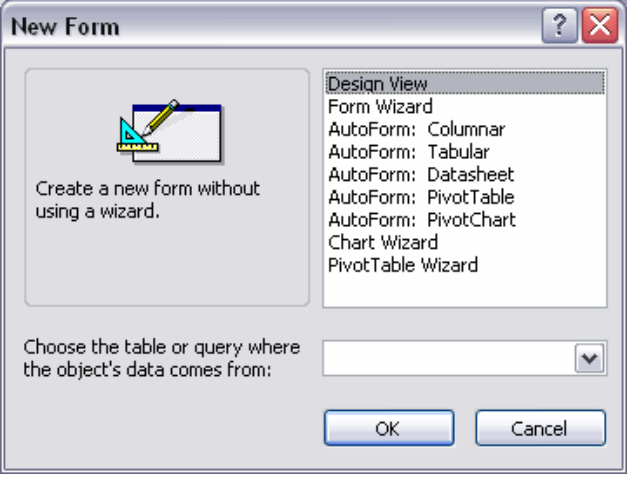
 d) All three answers are valid.

Bottom of Form

Unit 11. Forms (I)

Forms generally serve to define screens with which to edit the records of a table or query.
In this unit we will see how to create a form, and how to operate it for the editing of records and changing its design.

Introduction.



To create a form we need to position ourselves in the database window with the Form object selected, if we then click on the New button a window opens with the various ways we have to create a form:

- Design view opens a blank form in design view, and we then need to incorporate the various object that we would like to appear in it. This method is not used much as it is easier and faster to create an autoform, or to use the wizard and afterward modify the design of the created form to adjust it to our needs. We will see ahead in this unit how to modify the form design.
- Form wizard uses an a wizard that guides us step by step in the creation of the form.
- Autoform consists of automatically creating a new form that contains all the data from the source table.

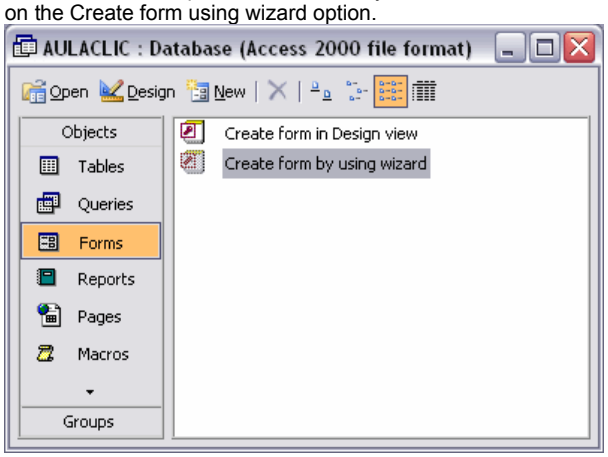
According to the type of form that we select (columnar, tabular,...) the form will present the data in a distinct way, when we click on one of the options, a sample will appear on the left side with the way in which the data will be presented with this option. E.g Autoform: columnar presents one record on a screen, meanwhile Autoform: tabular presents all the records on one screen and every record in a row.
In order to use this function we first need to fill out the Choose the table or query where the object's data comes from: with the name of the source. This will be the only data to introduce, and once introduced we select the kind of autoform and click on OK button, and Access does the rest.

- Chart Wizard uses a wizard that guides us step by step in the creation of a graphic.
- Pivot table wizard uses a wizard that guides us step by step in the creation of dynamic table.

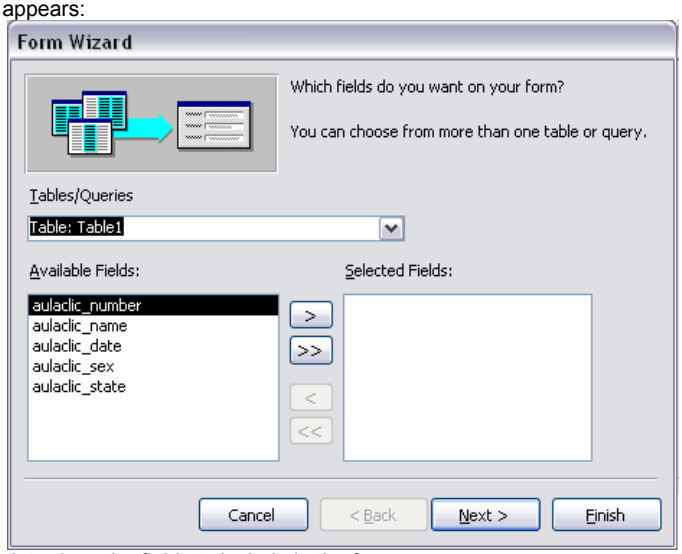
We will next explain how to create a form using the wizard.

The Form's wizard

To start the wizard we can do it as describe in the last point, or a faster way would be from the Database window with the Forms object selected, by double clicking on the Create form using wizard option.



The first window of the wizard appears:



In this window we are asked to introduce the fields to include in the form.

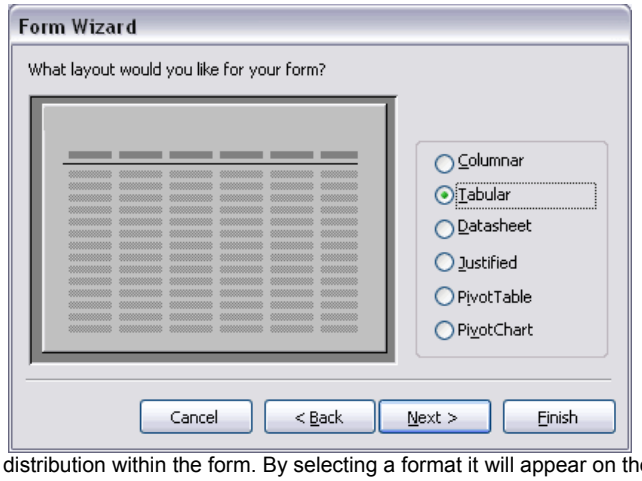
Firstly we select from the Table/Queries box the table or query that we are going to get the data from, this will be the form source. If we want to extract data from various tables it would be better to first create a query to obtain this data and then select this query as the form source.

Next we will select the fields to include in the form by clicking on the field and then the > button or simply double click on the field.

If we selected the wrong field click on the < button and the field will be removed from ther selected fields list.

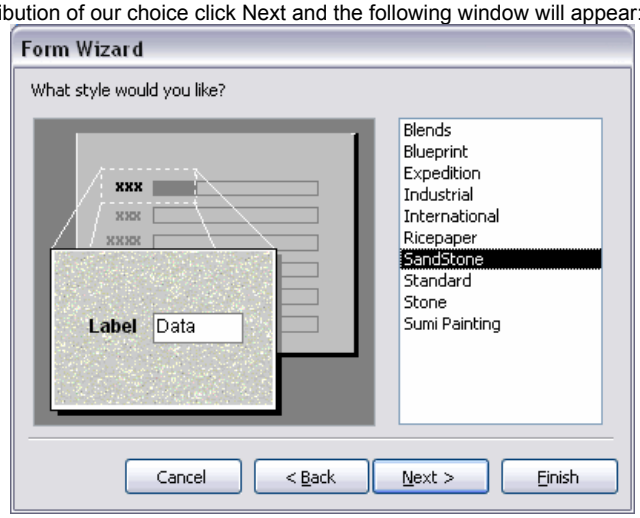
We can select all the fields at the same time by clicking on the >> button or deselect all the fields at once using the button <<.

Next we click on the Next> button and the window seen in the following example will appear...

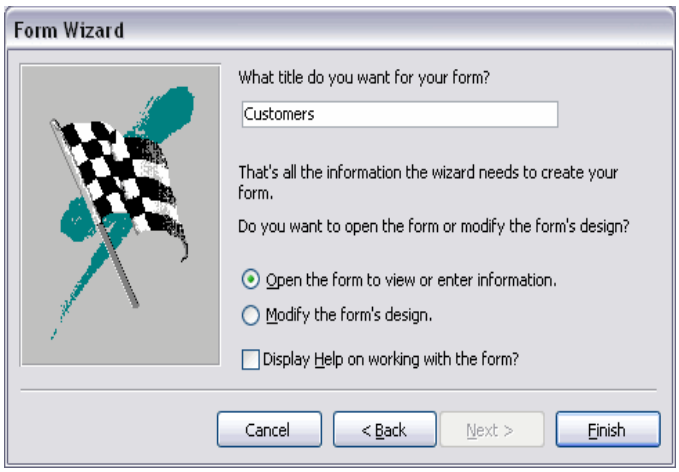


In this screen we select the data distribution within the form. By selecting a format it will appear on the left side the way it will be seen in the form.

Once we have selected the distribution of our choice click Next and the following window will appear:

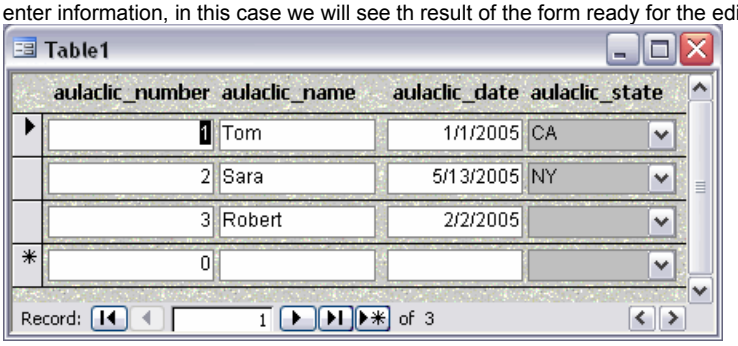


In this screen we select the forms style, we can select between the various defined styles that Access has. By selecting a style it will appear on the left side as it will in the form.
Once we have selected a style of our choice we click on the Next button and the last screen of the forms wizard will appear.



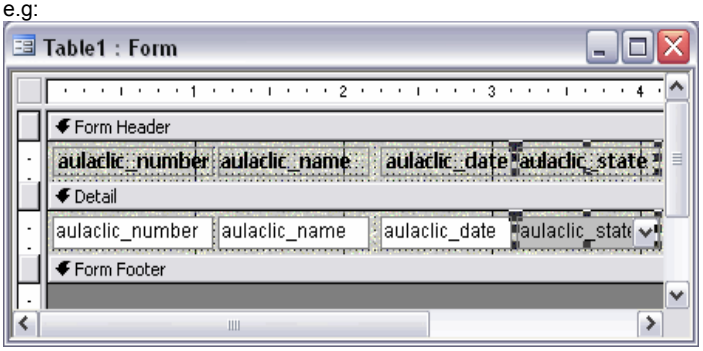
In this window we are asked for the title of the form, this title will also be the name assigned to the form.
Before clicking on the Finish button we can choose between:

- Open the form to view or enter information, in this case we will see th result of the form ready for the editing of data, e.g:



or,

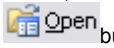
- Modify the form's design, if we select this option the Form design view will appear where we can modify the aspect of the form, e.g:

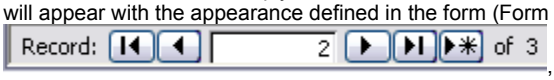


If you would like to continue with this unit, go to the next page...

Unit 11. Forms (II).

Editing data in a form

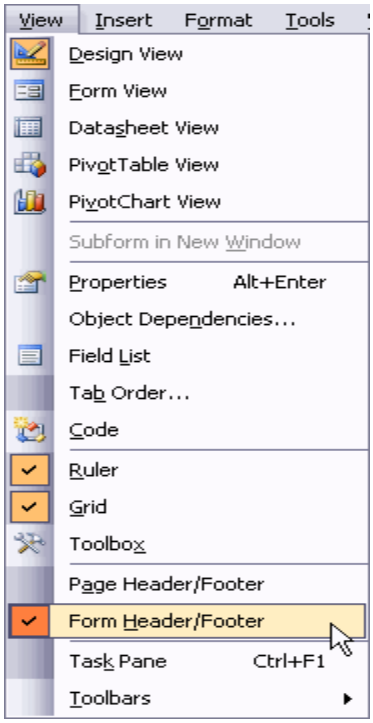
To edit the data of a table using a form, we need to open the form by positioning ourselves in the Database window with the Forms object selected and click on the 

button, or simply double click on the name of the form in the Database window.
The source data of the form will appear with the appearance defined in the form (Form view). We can then search for data using the navigation buttons we know 

, replace values, and modify it as if we were in the Datasheet view of a table, the only thing that changes is the appearance of the screen.

- To practice you can perform the Step by step Creating forms.

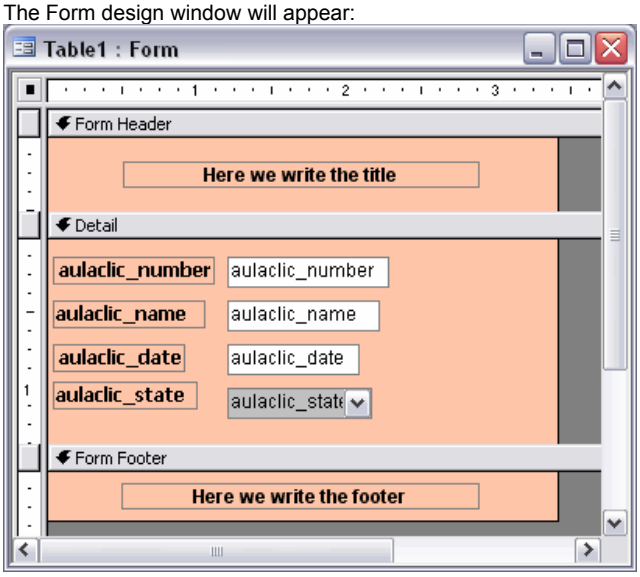
The form design view



The form design view is that which allows us to define a form, here we need to indicate to Access how to present the source data in the form, and here we can use the controls we will see ahead.

To enter into the design view we need to position ourselves in the Database window with Forms selected, and then click on the Design button.

The Form design window will appear:



The area consists of three sections:

The Form Header, here we put what we wish to appear at the beginning of the form.

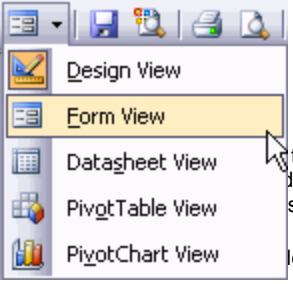
The Detail section, here the source records of the form appear, either various records or one per screen, depending on the type of form. Even though various records are visualized on one screen, we need to indicate the design corresponding to just one record in the Detail section.

The Footer section, here we need to put what we want to appear at the end of the form.

Using the View menu, and then the option Form header/Footer option we can close or open the header and footer.

The mark to the left of the option indicates to us whether the sections are open or closed, if we remove the sections we lose all the controls associated with them.

To open them we just need to select the option again.



the design area we have various rulers that permit us to measure the distances and the controls, we also have available
that helps us to place the controls within the design area.
see the ruler or the grid we have the Ruler and Grid options in the View menu, as we can see in the example above.

lesign bar



If you have entered into Form design and the bar does not appear, you can make it appear from the View menu, Toolbars, Form design option.
Next we will explain the various buttons that make up this bar.

The first allows us to pass from one view to another, if we drop down this menu we can select between Design view as we are describing at present, Form view which presents the source data to us in the way we defined in the design view, and the Datasheet view which we already know, the other views do not enter as part of our course.

The Save button allows us to save the changes we are making without exiting the form.

The File Search button allows us to search for archives.

After this we have the Print and Print preview (to see the effect before sending the form to the printer).

Later we have the Cut , Copy , Paste , and Copy Format buttons to apply these same actions to the controls of our form. In order for the Cut, Copy, and Copy format options to be available we first need to select the control/s which we want the action to apply to. E.g, select the control to copy, click on the Copy button, position yourself over the area where we want to copy to and click on the paste button.

The Undo and Redo buttons are to undo the previous actions performed if we have made a mistake or to redo them after undoing them.

To insert a hyperlink we have the button.

The next button makes the Field list box appear or disappear, here, all the data source fields appear and are easier to add into the design area as we will see ahead.

The button makes the Toolbox appear or disappear, here all the control types appear and are easier to add into the design area as we will see ahead.

With the Autoformat button we can change our form's aspect with one click to a different predefined format, these are the same styles that appear with the wizard.
All forms have an associated code page in which we can program certain actions using the VBA language (Visual Basic for Applications), this code page can be accessed by clicking on the button.

With the button we can make the Properties dialog appear or disappear of the selected control. If you want to know more about form properties clic here .

The button starts up the expression, or macros or code builder.

If we want to go to the Database window we have the button.

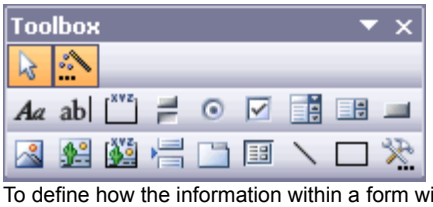
To create a new table, query, form, macro, etc... without exiting our form we can use the button, on dropping down we need to indicate what type of object we want to create in the database.

Finally we can access the Access help by clicking on the button.

If you want to continue with this unit go to the next page...

Unit 11. Forms (III).

The Toolbox



To define how the information within a form will appear, and in what format it will be, we use controls. A control is nothing more than an object that shows data, performs actions, and/or is used as decoration. E.g, we can use a text box to show data, a command button to open a form or report, or a line or a rectangle to separate or group controls in order to make them more legible.
In the Toolbox we have a button for each type of control that can be added to a form.

If the Toolbox does not appear, click on the button on the toolbar.
If we want to create various controls of the same type we can block the control by double clicking on it (it will appear enclosed in a darker line), as from this moment we can create all the controls we want of this type without having to double clic every time. To unblock, all we need to do is click on the button.

There is a wizard that will help us to define the control, to activate it wizard click on button.
The Toolbox includes the following types of controls:

A Label serves to visualize a fixed text, text that we write directly into its control or Caption property.

A Text box is usually used to present data stored in a source field of the form. This type of text box is called an dependant text box because it is dependant of the data in one specific field, and if we edit data in the Form view we will be changing the data at the source. Text boxes can also be independant, e.g to represent the results of a calculation, or to accept the entry of a users data. The data in an independant text box is not stored anywhere. In the Control source property we have the name of the associated table's field (when it is dependant) or a calculation formula if we want it to present the result to us in this case the formula needs to be preceeded by a = sign.

An Option Group is used to present a limited group of alternatives. A group of options makes it easier to select a value as the user only needs then to click on the value he requires. There should only be a few options, otherwise it would be better to use a list box or a combo box instead of an option group.
When we insert a group of options the wizard will appear to help us to define the group.

The Toggle button is usually used to add a new option to an existing Option Group, it can be used to present a Yes/No field; if the field contains a Yes value the button will appear depressed.

The Option button is usually used to add a new option to an existing Option Group, it can be used to present a Yes/No field; if the field contains a Yes value the button will appear like this , if not , like this .

The Check box is usually used to add a new option to an existing Option Group, it can be used to present a Yes/No field; if the field contains a Yes value the button will appear like this , if not , like this .

The Combo box . In many cases it will be easier to select a value from a list than to remember it in order to type it. A list of possibilities also helps to assure that the value introduced is correct. If we do not have sufficient space to show the list at all times the combo box is used as it shows only one value (that which is associated with the control), and if we want to see the list we can drop it down with the arrow to the right. When we add a combo box to the design area the wizard will open to help us to define the control.

The List box . The difference between the combo box and the list box is the list appears visible at all times in a list box. Like a combo box, a list box can also contain one or more columns, that can appear with or without headers. When we add a list box to the design area the wizard will open to help us to define the control.

The Command permits the execution of an action with simply a click, e.g to open another form, to delete a record, to run a macro, etc... On clicking the button it does not only execute the corresponding action, but the button also appears depressed and then released. It also has an associated wizard that permits us to create buttons to perform more than 30 different predefined actions.

The Image is used to insert images into the form, this image does not vary on changing the record.

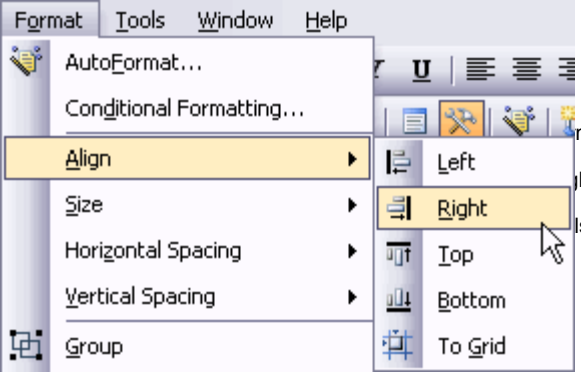
An Unbound object frame is used to insert controls, e.g a sound, a Word document, a graphic, etc... These controls will not vary when we change the record.

A Bound object frame is used to insert an image or other object that will change from one record to another.

A Page break does not have any effect on the Form view, but rather on the preview and at the moment of printing.

The Control tab is used when we want to present many fields for each source record but they do not fit on one screen and we want to organize them in various tabs.

We can also add a Subform . A subform is a form that is inserted into another. The primary form is called the principal form, and the form within this is called the subform. A form/subform combination is often referred to as a hierarchial form, a principal/detail form, or a principal/secondary form. Subforms are very effective when we want to show the data of a table or query in relation to another. E.g, we can create a form to show the data in the Courses table with a subform to show the students recorded in this course.
The principal form and the subform of this type are linked, so that the subform will only present those records that are related with the actual record of the principal form (that the subform will only show those students that are recordred in the active course).

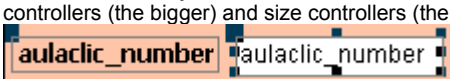


m.

le to the form.

ls with the button.

Selecting controls.
To select a control just click on it. When a control is selected it appears enclosed in some boxes, we call these boxes movement controllers (the bigger) and size controllers (the smaller) as we can see in the image below.



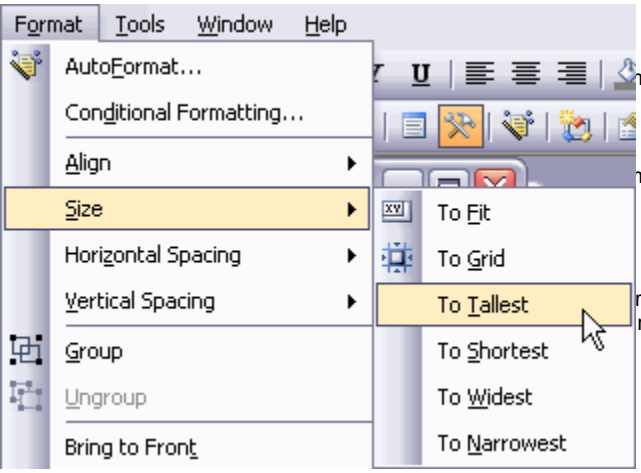
To select various controls we can click on one of the controls to select, maintain depressed Shift key and click on each one of the controls to select.
If we want to select various adjacent controls there is an easier way: left click on the mouse over the background of the design area and without letting go drag it, we see that a box appears in the design area, and when we release the mouse button all the controls that enter into this box will remain selected (it is not necessary for the control to be entirely in the box).

Adding controls

To add a new source field to a form, the fastest and easiest way is to open the Fields box (if not already open) by clicking on the button on the toolbar. All the source fields will appear in this box. Next click on the field you want to add and drag it to the place in the form where you want it to appear. Access will automatically create a tag with the name of the field and an associated text box.
If we want to add another type of control like an image, open the Toolbox, click on the type of control that we want to add, and let go of the mouse button, we see that the cursor has taken on a different form. We now position ourselves in the area of the form where we would like to define the control, left clic and maintaining, drag the mouse untill we have the desired size.

To move a control, we select the control and move the mouse a little until the cursor takes on the form of a hand. At this moment clic and maintain, dragging the control into its final position. When a control is moved the label is also selected and moves with the control.
To move only the label, position the cursor over its movement controller, and when the cursor takes the form of an index finger drag it.
We can move the control without its tag in much the same way, but the index finger needs to be over the movement controller of the control.
To move various controls at the same time, we select and move one of them and they will all move the same way.

Changing the size of the controls
To change the size of a control select it so that the size controllers appear, next move the mouse over one of the size controllers, and when the cursor takes the form of a double arrow, left clic, maintain, and drag untill the control has the desired size.
To change the size of various controls at the same time, we select and change the size of one of them and they will all change the same way.



n the Step by step exercise Changing the design of forms.

n the Step by step exercise Creating subforms.

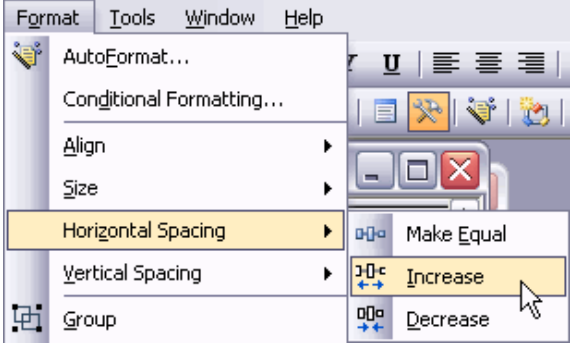
one by one, guiding them through the box, but we have an easier method in the
rop down the Format menu, then the Align menu and select the option according to
right, up, down, and to grid. To see the effect of every option we have a diagram to

Adjusting the size of the controls
If we want various controls to be the same size to leave our form more attractive we have a very useful tool, the Size option in the Format menu.

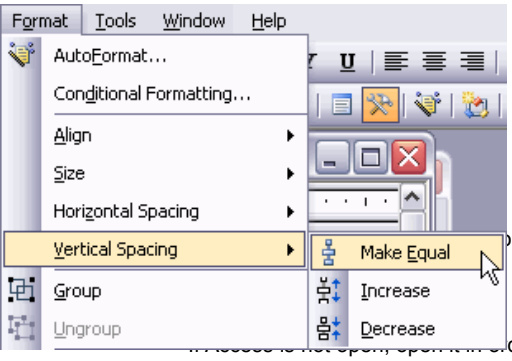
We proceed in the same way as with aligning controls, selecting the controls we want to adjust, drop down the Format menu, then the Size menu, and select the most adequate option.
We can select To Fit, this makes the control the correct size so that all of its contents will fit.
To Grid: adjusts to the grid.
To Tallest: all contols take on the tallest height.
To Shortest: all the controls take on the smallest height.

To Widest: all the controls take on the largest width.
To Narrowest: all the controls take on the narrowest width.

When we want to align and leave controls at the same size it is best to first adjust the size and then aline them up, as the aligning is sometimes lost when the sizes are adjusted.



Adjusting the space between controls
If we want to change the distance between controls, apart from moving them freely in the design area, we can use the Format menu options.
We select the controls that we want to adjust, drop down the Format menu, and in the Horizontal spacing menu we select the most adequate option, leaving it with the same space between controls (Make equal), increasing the space between the selected controls as shown in the image to the left of the option (Increase), or reduce the space (Decrease).



We can do the same with the vertical spacing, selecting the controls that we want to adjust, drop down the Format menu, then in the Vertical Spacing menu we select the most adequate option for us, leaving it with the same space between controls (Make equal) as shown in the image to the left, increasing the space between the selected controls (Increase), or reduce the space (Decrease).

u can perform the Step by step exercise Adjusting and aligning controls.

der to be able to carry out the following exercises.

Exercise 1: Cars

1 Open the Cars database.
2 Create a form with which to edit the records in the Clients table, naming it Client maintenance.
3 Create a form with which to introduce and edit the records of the Sold cars table, naming it Sold cars maintenance.
4 Create a form with which to introduce and edit the records of the Services table. Design it in such a way that at the time of introducing the license the user can see the name of the client who has the licence, naming it Services maintenance.

Exercise 2: Clinic

1 Open the Clinic database.
2 Create a form with which to edit the records in the Patients table, naming it Patients maintenance.
3 Create a form with which to introduce and edit the records in the Doctors table, naming it Doctors maintenance.
4 Create a form in which a doctors data will appear in a zone, and below this the list of admissions that the doctor has, naming it Entries per doctor.

If you are unsure of how to perform any of the previous exercises, we will explain them to you Here.

Unit 11 evaluation test. Forms

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the results.
If you press Reset you will be able to repeat the evaluation.

1. Photos can be visualized from a form.
 a) True.
 b) False.

2. A form can be created from two or more tables.
 a) True.
 b) False.
3. The most commonly used form distributions are Datasheet and Columns.
 a) True.
 b) False.
4. The records from a form's source can be edited from the form.
 a) True.
 b) False.
5. We can open a form from another form.
 a) True.
 b) False.
6. The button serves to...
 a) ...insert a command button.
 b) ...draw a rectangle.
 c) ...insert a label.
7. The button serves to...
 a) ...save the form in this folder.
 b) ...add a control date to the form.
 c) Neither answer is true.
8. The size of various controls can be changed at the same time...
 a) ...by selecting them and stretching one of the size controls.

 b) ...only if they all have the same size.

 c) ...they need to be changed one at a time.

9. When we want to type a fixed value (e.g a title).

 a) We use the button to create a label.

 b) We write the text directly into the design area.

 c) Both answers are correct.

 d) All three answers are false.

10. To align various controls...
 a) ...we can only drag them until they are aligned.

 b) ...we select the align option and then the controls to align.

 c) ...we select the controls and then the align option.

Bottom of Form

Unit 12. Reports (I)

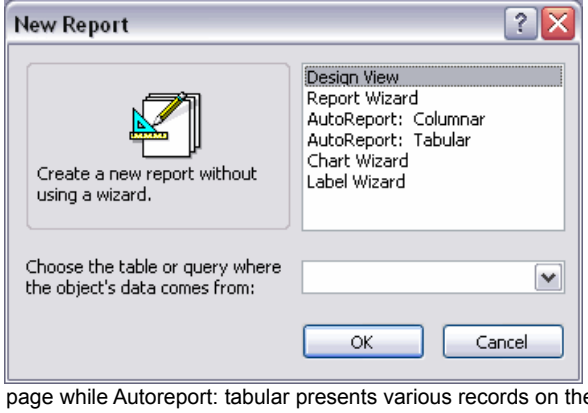
Reports are generally used to present the data of a table or query in order to print them. The basic difference with reports is that the data can only be visualized or printed (it can not be edited) and the information can be grouped and totals extracted by group more easily.
In this unit we will learn how to create a report using the wizard, and how to change its design once created.

Introduction

To create a form we need to position ourselves in the Database window with the Reports object selected, if we click on the 

button a dialog box will open with the different types of reports that we can create.

Design view opens a blank report in design view and we then need to incorporate the different controls that we want to appear within it. This method is not usually used as it is both easier and more comfortable to create an autoreport or to create a report using the wizard, and afterwards to edit the design of the report to suit our particular needs. Ahead in this unit we will see how to edit the reports design.



- The Report wizard uses a wizard to guide us step by step through the creation of the report.
- Autoreport consists of automatically creating a new report that contains all the data of the source table or query.

The data will be presented differently depending on the type of report chosen, and when we click on one of the options a model will appear on the left. E.g Autoreport: columnar presents each record on one page while Autoreport: tabular presents various records on the same page with a record in each row. We saw these layouts with forms in unit 11.

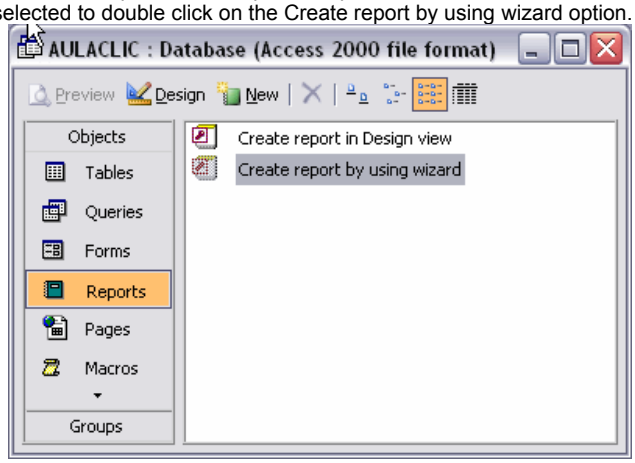
In order to be able to use this option we first need to fill in the Choose the table or query where the object's data comes from: box with the name of the report's source. This will be the only data that we need to introduce, and once it has been introduced we select the type of autoreport and click on the OK button, Access will do the rest.

- The Chart wizard uses an assistant that guides us step by step through the creation of a graphic.
- The Label wizard uses an assistant that guides us step by step through the creation of labels.

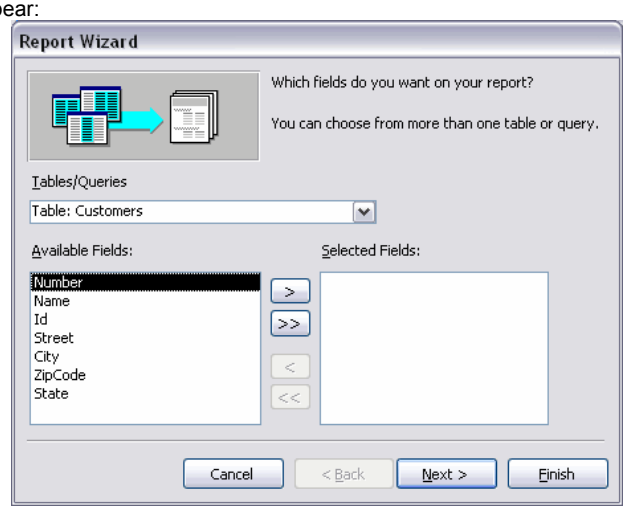
Next we will explain how to create a report using the wizard.

The Report wizard

To start the wizard we can use the method explained in the previous point or a faster and easier method would be from the Database window with the Reports object selected to double click on the Create report by using wizard option.



The wizard's first window will appear:

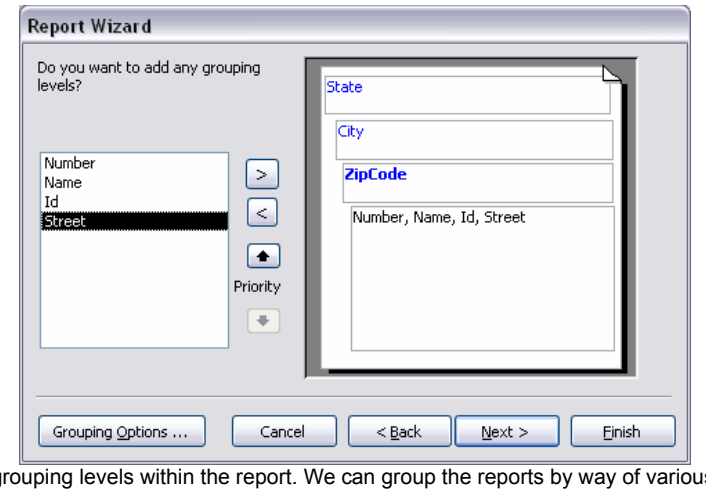


In this window we are asked to introduce the fields to be included in the report.
Firstly we select the table or query from the Tables/Queries box where it should extract the data from, this will be the report source. If we want to extract data from various fields it would be best to create a query to obtain the data and then to use this query as the source of the report.

Next we select the fields by clicking on the field and then on the [>] button, or simply double clicking on the field.

If we make a mistake we click on the [<] button and the field will be removed from the list of selected fields.

We can select all the fields at the same time by clicking on the [>>] button, or deselect all at the same time by clicking on the [<<] button.
Click on the Next> button and the next window will appear...



In this screen we select the grouping levels within the report. We can group the reports by way of various concepts, and with each concept add a group header and a footer, and in the group footer we will normally see the group total.

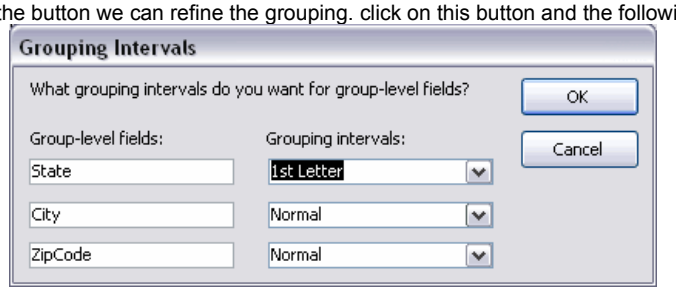
To add a grouping level click on the field by which we want to goup and click on the [>] button (or double clic directly on the field). A diagram will appear to the right indicating the structure that our report will take on, and in the central zone the fields that are seen for every record will appear. In our example a group by city will appear at the top and a group by postal code will appear at the bottom.

To remove a grouping level click on the header corresponding the group and click on the [<] button.

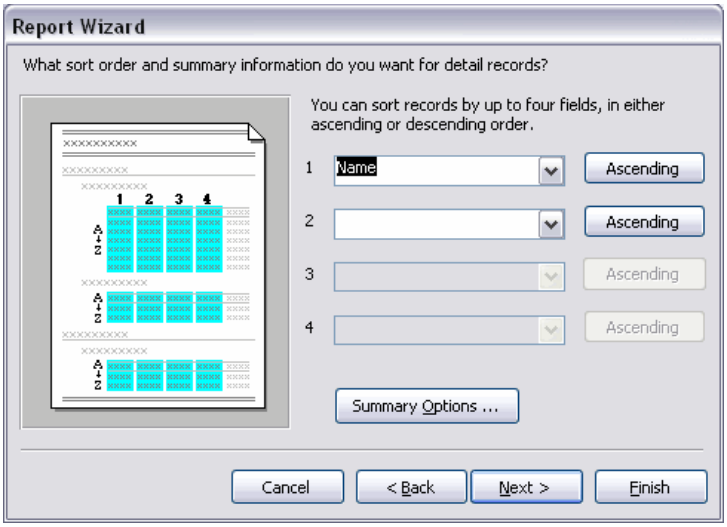


If we want to change the order of the defined groups we use the button, the upward arrow will move us up a group, and the downward arrow will move us down a group.

With [Grouping Options ...] the button we can refine the grouping. click on this button and the following screen will appear.



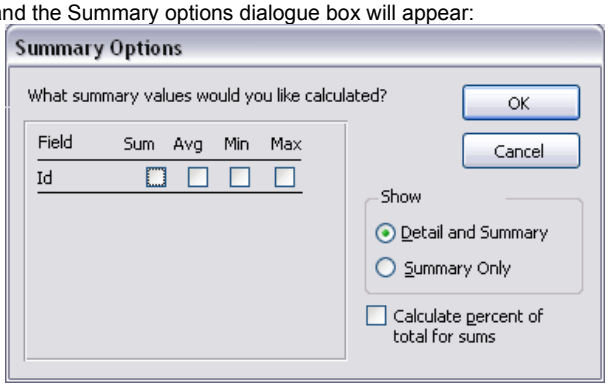
The different groups that we have defined will appear in this box, and for every group that we have the field that defines the group in Group-level fields:, and in the drop down list of the Grouping intervals: we can indicate whether it should use the complete value contained in the field to group, or use the first letter, the first two letters, etc... After clicking on the OK button we return to the previous screen.
Once we have the grouping levels defined we click on the Next> button and we go to the next window, as seen on the next page.



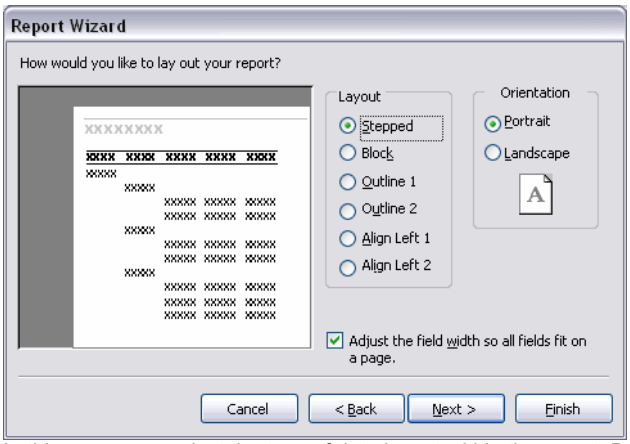
In this screen we can choose to sort the fields into up to four sort fields. We select the field by which we choose to sort the records that will appear in the report and whether we want it in ascending or descending order, in order to select descending we click on the Ascending button and it will change to Descending.
We can select a different order in each of the sort fields.
This screen also allows us to add totals in an almost automatic way, if we want to add lines of totals we need to click on the



button and the Summary options dialogue box will appear:

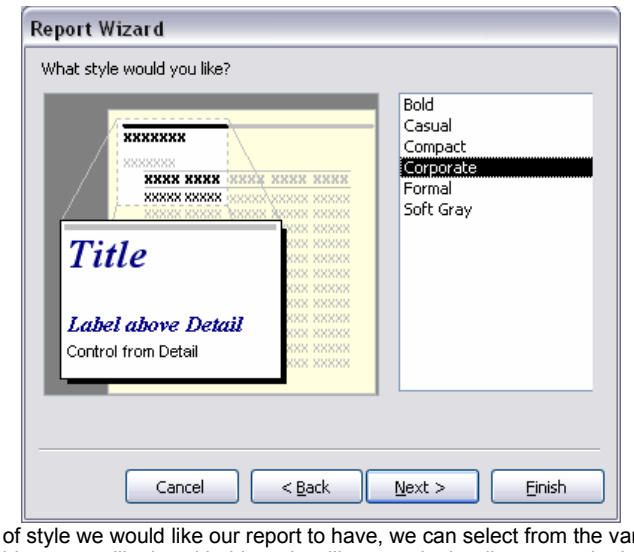


A list of the numeric fields that we have in the repot will appear in the dialogue box, and also the summary functions that can be selected to calculate some total. In order for the sum of a field to appear we only need to select the box in the Sum column found in the field row. We can select various totals in this way.
If we activate Detail and summary in the Show section, the lines of details (the source records) will appear as well as the lines of totals. If we select the Summary only option the detail lines will not appear.
If we select the Calculate percent of total for sums box it will add a porcentage total that represents the calculated sum over the total of all the records. E.g if we aquire the sum of hours for a group, this porcentage will be the porcentage that represents the hours of the group within the total hours of all the groups.
Once we have filled in the corresponding options we click on the OK button to go to the wizards next screen.
To continue with the wizard we click on the Next> button and the following window will appear.

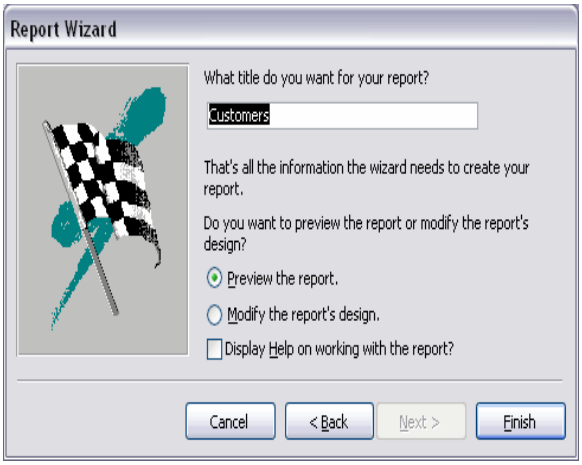


In this screen we select the type of data layout within the report. By selecting a distribution the aspect that the report will take with this distribution will appear in the diagram to the left.

In the Orientation section we can select from either a Portrait or a landscape printing (oblong).
With the Adjust the field width so all fields fit on a page the wizard will generate the fields in this way.
We then press the Next> button and the following screen will appear:



In this screen we select the type of style we would like our report to have, we can select from the various defined Access styles. By selecting a style the aspect that this report will take with this style will appear in the diagram to the left.
Once we have selected a style we click on the Next button and the wizards last screen will appear.



In this screen we are asked the title of the report which will also be the name asigned to the report.
Before clicking on the Next button we can choose>

- Preview the report, in this case we will see the result of the report for the printing.
- Modify the report's design, if we select this option the Form design window will appear where we can modify the aspect of the report.

To practice these operations you can perform the Step by step creating a report with the wizard..

Unit 12. Reports (III).

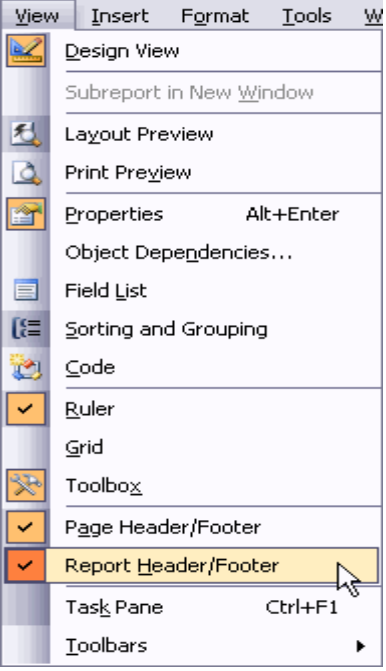
The report design view.

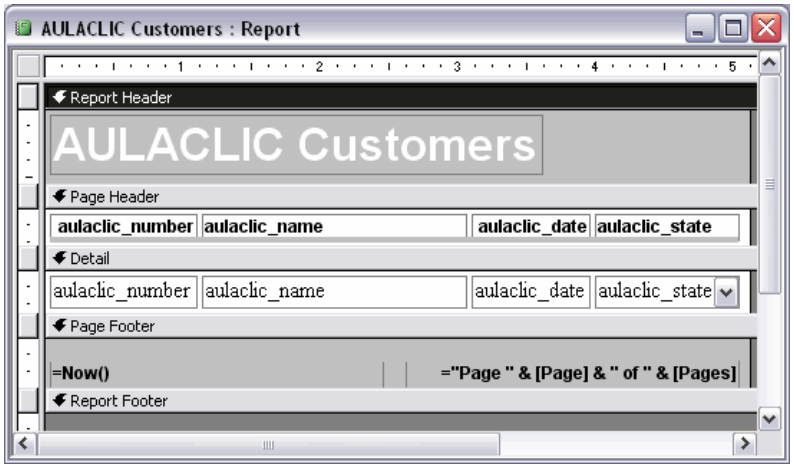
It is the design view that allows us to define the report, here we indicate to Access how it should present the source data of the report, and here the controls serve us in much the same way as when we design a form.

- To enter into the design view we need to position ourselves in the Database window with reports selected and then to click on the 

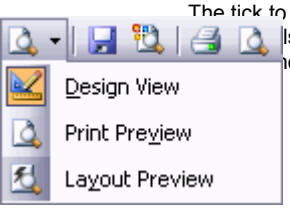
button.

The design window appears:





The design area is normally made up of five sections.
The Report header section, here we put what we would like to appear in the beginning of the report.
The Page header section, here we put what we would like to appear at the beginning of each page.
The Detail section, here all the source records of the report will appear, either various records or just one per page - depending on the report. Even if various records are seen on a page, we need to indicate the design corresponding to only one record in the Detail section.
The Page footer section, here we put what we would like to appear at the end of each page.
The Report footer, here we put what we would like to appear at the end of the report.
We can delete the headers and footers from the View menu, Page Header/Footer and Report Header/Footer.
The tick to the left of the option indicates to us whether the sections are open or closed, and if we remove a section we also loose all ls associated with it.
em we need to go back and select the option.



We have rulers around the design area to help us measure the distances and the controls. We also have a grid available with which to place the controls within the design area.
To see or hide the rulers or the grid we have the Grid and Ruler options from View menu, as we can see in the previous image.

The report design bar.



If you have entered into the form design and this bar does not appear you can make it appear from the View menu, then Toolbars, and then Report design.
Next we will describe the various buttons that make up this bar.

The first one  allows us to go from one view to another, and if we drop down the menu we can select from Design view which we are explaining now, or Print Preview which presents the source data of the report in the way it will be printed, or the Layout preview which allows us to quickly examine the design as it will only include one sample of the report's data. If the report is based on a query that needs parameters it is not necessary to type any value, we only need to click on the OK button.

The Save  button allows us to save the changes made in the design without exiting the report.

The Search  button allows us to search for files.

We then have the Print  button with which to send the report to the printer, and Print preview  to see the report before sending it to the printer.

We then have the Cut , Copy , Paste , and Copy format  buttons to apply these same actions to the controls in our report. In order for the Cut, Copy, and Copy format to be activated we need to first select the control/s onto which we wish to apply the action. E.g select the control to copy, click on the copy button, then position the cursor in the area where we want to leave the copy and click on the Paste button.

The Undo  and Redo  buttons are for undoing the last action if we made a mistake, or redoing an action that we have undone.

To insert a hyperlink we have the  button.

The next  button makes the list of fields box appear and disappear, in which all the source data fields appear in order to make

them easier to add to the design area as we will see ahead.

The button makes the Toolbox appear or disappear in which all the types of controls appear in order to make them easier to add to the design area as we will see ahead.

The button allows us to modify the group levels as we will see ahead.

With the Autoformat button we can change the aspect of our report to a predefined design from Access with just one click, these are the same styles that appear in the report wizard.
All reports have an associated code page in which we can program various actions using VBA language (Visual Basic for Applications), this code page can be accesses by clicking on the button.

With the button we can make the Properties box of the selected control appear or disappear. The report's properties are much the same as those of a form.

The button starts the expressions, or macros or code generator.

If we want to go to the Database window we have the button.

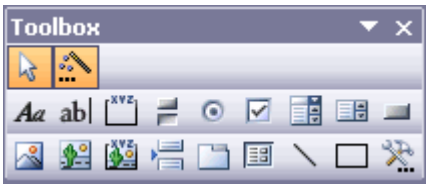
To create a new table, query, report, macro, etc... without exiting our report we can use the button, on dropping it down we can select the type of object we want to create in the database.

And finally we can access the Access help by clicking on the button.

Go to the next screen if you want to continue with this unit...

Unit 12. Reports (IV).

The Toolbox



To define what information should appear in the report, and in what format it should be, the same controls can be used as in a form although some controls for example the command buttons are more appropriate for a form.
In the Toolbox we have a button for each type of control that can be added to the report.

If the Toolbox does not appear click on the button on the toolbar.
When we want to change various controls of the same type we can block the control by double clicking on it (a dark line will appear around it). As from this moment you can create all the controls of this type that you want without having to double click on the corresponding button every time. To remove the block we click on the button.
The box contains the following types of controls:

The Label serves to visualize a fixed text, text that we type directly into the control or in its Caption property.

The Text box is used mostly to present a data stored in a source field of the report. This type of textbox is called an Dependant textbox because it depends on the data from one field. Textboxes can also be independant, to present the results of a calculation for example. In the Control source property we have the field of the table that is associated (when it is dependant) or the formula of thr calculation when we want it to present the result of this calculation, in this last case we need to preceed the formula with a = sign.

The Options group is used to present a limited combination of alternatives. It is usually used more for forms, for more detail revise the forms unit.

The Alternate button is usually used to represent a Yes/No type field, if the field contains the Yes value the button will appear depressed.

The Option button is usually used to represent a Yes/No type field, if the field contains the Yes value the button will appear like this , if not it will appear like this .

The Verification box is usually used to represent a Yes/No type field. If the field contains the Yes value the box will appear like this , if not it will appear like this .

Combo box , Listbox , Options group , Command button and Tab control . These are usually used more in forms, for more detail revise unit 11.

Image control to insert images into the report, this image will not change when changing the record.

Unbound object frame is used to insert controls like a Word document, a graphic, etc... They will be controls that do not change

when changing a record.

Bound object frame is to insert an image or an object that will change from one record to another.

Page break , is used to force a new page even if you have not reached the end of the page.

We can also create a subform . A subreport is a report that is inserted into another. The primary report is called the principal report , and the report within the principal report is called the subreport. A report/subreport combination is often called a hierarchical report, principal/detail report or principal/secondary report.

Line to add a line to the report.

Rectangle to add a rectangle to the report.

And finally we can add more complex controls with the button.
We see that the management of controls in reports is identical to the controls of a form., if you have any doubt about how to add a control, how to move it, copy it, change its size, how to adjust its size, or aligning the various controls revise the previous unit.

Unit 12. Reports (V).

Printing a report

Printing a report can be done in various ways.

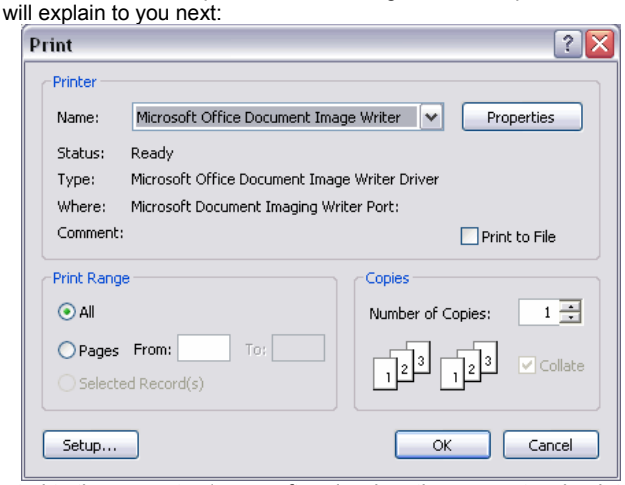
- Printing directly

If we are in the Database window:
Select the Report tab.
Click on the name of the report that we want to print to select it.

We click on the button on the toolbar, the report is sent directly to the printer. In this case all of the pages in the document will be printed with the options defined at that moment.
Before sending the printing to the document it is convenient to check the defined options at that moment, and for this we need to open the Print dialogue box.

- Opening the Print dialogue box

If we are in the Database window:
Select the Report tab.
Click on the name of the report that we want to print to select it.
If we drop down the File menu and select the Print... option the Print dialogue box will open in which you can change some of the parametres in the printing as we will explain to you next:



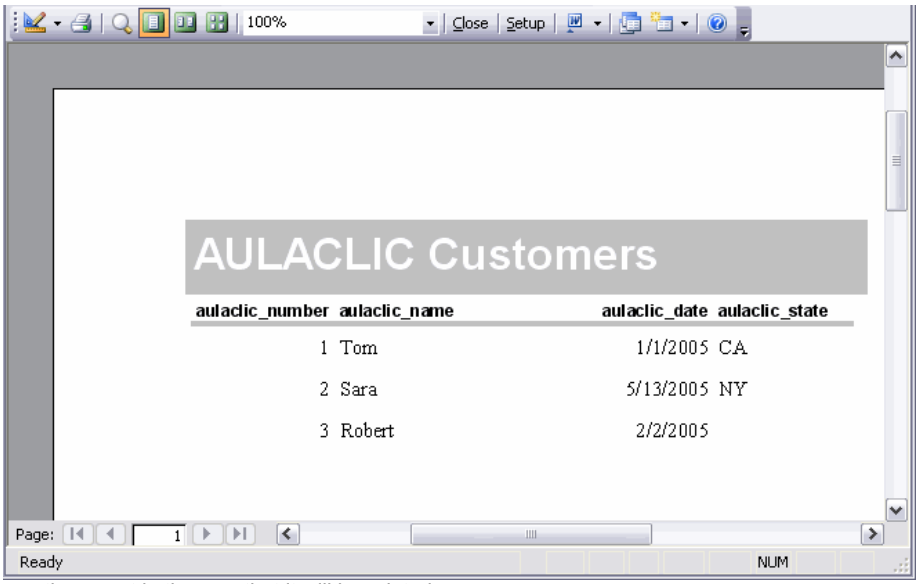
If we have various printers connected to the computer (as we often do when they are network printers), dropping down the Name: combo box we can select the printer to which we want to send the printing.
In the Print Range section we can specify whether we want to print the whole report (All) or just a few pages.
If we only want to print a few pages we can specify the inicial page of the interval to print in the from: box, and in the To: box specify the final page.
If we have records selected when we open the dialogue box we can select the Selected Record(s) option to print only these records.
In the Copies section we can specify the Number of Copies: to print. If the Collate option is not selected then it will print a full copy and after that another copy, while if we activate the Collate option it will print the copies of each page together.
The Print to File option allows us to send the result of the printing to a file in the hard drive instead of sending it to the printer.
With the Properties button we can access the printer properties window, this window will change depending on the model printer we have, but will allow us to define the type of printing e.g in colour or black and white, in high quality or draft copy, the type of paper we use, etc...
With the Setup ... button we can configure the page, change the margins, print various columns, etc...
And lastly we click on the OK button and the printer will start. If we close the window without accepting nothing will be printed.

- Opening a report in Previous view.

To check whether the printing will come out well it is convenient to open the report previously on the screen to check if it is ok to go ahead and send it to the printer. To open a report in preview from the Database window we need to follow these steps:

With the Reports object selected, click on the name of the report to select it.
Next we click on the Preview button and the report preview will open.

The Preview window



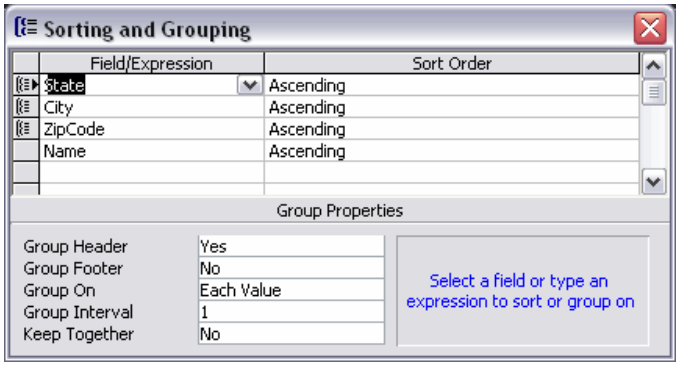
In this window we see the report in the way that it will be printed.
To pass over the various pages we have a scroll bar in the lower part of the screen with the buttons that we know already to go to the first page, to the next page, to a specific page, to the previous page or to the last page.
At the top we have a toolbar with buttons that are already familiar to us:
to go to design view, to send the report to the printer, to go to the Database window, to create a new object, and to access help.
the magnifying glass allows us to draw near or draw away from the report
allows us to visualize a whole page on the screen,
reduces the size of the report in order to see two pages of the report on the same screen.
allows us to see up to six pages on the screen at the same time.
100% adjusts the size so that a whole page can be seen on the screen, and if we drop down the menu we can select a zoom porcentage to see the page closer or further, it has the same function as the magnifying glass but allows more sizes.
Setup opens the Page setup window where we can change the margins, the orientation of the paper, etc...
sends the report to a Word document, dropping down the box we can select to send it to various Microsoft applications, Excel for example.
Close will close the preview without sending the report to the printer.

To practice these operations you can perform the Step by step exercise in printing reports.

Unit 12. Reports (VI).

Sorting and grouping

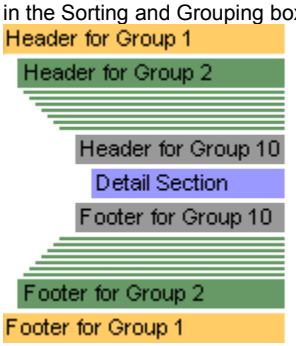
As we have already seen, with the wizard's help we can define grouping levels for the records in the report and extract a special heading or line of totals for each group, we can also define a determined order for the records that appear in the report.
To define the order of the records, create a new grouping level or modify the levels that we have already defined in an already defined report, we open it in design view and click on the button on the toolbar. The Sorting and grouping dialogue box will open as shown below.



In the Field/expression columnn we indicate the columns which we want to sort or group , and the columns that serve to define groups appear with a symbol to their left. Normally the name of the column is put, but on occasions we can type an expression e.g if we want to group the records of a date field by month, we put the expression =month(datefield). The expression always needs to be preceeded by an = symbol.

The order into which we put the various fields is important. In the previous example we type State, then City, and finally Zipcode, which means that the records will first be gouped by State and within the same state the courses will be sorted by City, and then within the same city will be sorted by zipcode.

We can create up to ten grouping levels, and these levels will be added (one within another) in the same order as what they appear in the Sorting and Grouping box.



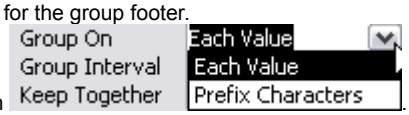
In the Sort order column we define the type of order that we want for each field, it can be in Ascending (in alphabetic order if the field is text type, least to most if the field is numeric, and oldest to most recent if it is a date field) or Descending, in inverse order.

In the bottom part we have each grouping and sorting columns properties.

The Group header property is where we indicate whether we want to include a group header, it will contain all the data we want to print only when a group start. If you change the property to Yes you will see that a new section appears in Report design window for the group header.

In the Group footer property we indicate whether we want to include a group footer, and it will contain all the data that we want to print only when the group ends and is normally used to print the group totals. If you change the property to Yes you will see that a new section appears in the report design window for the group footer.

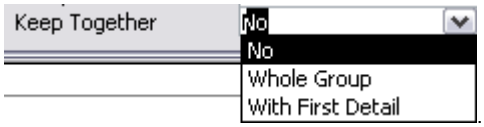
In the Group on property we can choose between



If we select Each value, it will sort the records in the report by field, and every time the field value changes it will end the group and start a new group of values. If we select Prefix Characters, in the Group interval property we put a n number of characters, and it will group by n first characters in the field.

The Group interval property serves to indicate a number of characters if we have the Group in property with an Prefix Characters value.

It also serves to form groups of a fixed number of records e.g if we want to form groups of five records, we put Each value in the Group on property and we put 5 in the Group interval property.



And lastly we have the Keep together property where we can choose between

If we select Whole group it will try to write the group header, the detail section, and the group footer on the same page, i.e if after the records of the first group have been printed and there is half a page left empty but the second group does not fit in this space, it will skip the page and start the new group on a new page.

If we select With First Detail it will only print the group header if it can also print the first detail record.

If we select No, it will be printed without maintaining the group header, the detail section, and the group footer on the same page.

To practice these operations you can perform the Step by step exercise in creating reports with groups.

Unit 12 exercise. Reports

If Access is not open, open it in order to be able to carry out the following exercises.

Exercise 1: Distributer

1 Open the Cars database.
2 Create a report to obtain a list of the clients sorted by surname in such a way that the clients of each city can be filed in a separate page.
3 Create a report to print the records of the Sold cars table, grouped by Make and sorted by Model and also extracting how many cars have been sold of each make and how much do they cost, and print it.
4 Create a report with which to print the records of the Services table, and print it.

Exercise 2: Clinic

1 Open the Clinic database.
2 Create a report to print the Name and surname of each patient as well as their Entry date and surname of the assigned doctor.

If you are unsure of how to perform any of the operations in the previous exercises we will explain them to you Here.

Unit 12 evaluation test. Reports

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the results.
If you press Reset you will be able to repeat the evaluation.

1. The Autoreport option allows us to open the wizard which will then ask us which fields we want to print
 a) True.

 b) False.

2. A report can be created from two or more tables.

 a) True.

 b) False.
3. We can add totals with the report's wizard.
 a) True.

 b) False.

4.We can include a report within another report.
 a) True.

 b) False.
5. We can include more than three grouping levels within a report.
 a) True.

 b) False.

6. The 

button serves to...
 a) ..go from one record to another.

 b) ...change the order of the records.

 c) ...change the order of the groupings.
7. The  icon serves to...
 a) ...see the report closer (to zoom).

 b) ...see the report in print preview.

 c) ...look for a report.
8. We want to group by the first two letters of a field....
 a) ...I can indicate this directly in grouping options.

 b) ...it is necessary to use a function to get the first two letters.

 c) It is not possible.
9. Reports are objects that allow us to:
 a) Introduce data into the tables.

 b) Print the data stored in the tables.

 c) Both the previous answers are correct.

 d) All three answers are false.
10. In a report one can include...
 a) ...images stored outside of the database.

 b) ... images only if they are stored in a table.

 c) ...images can not be included.

Bottom of Form

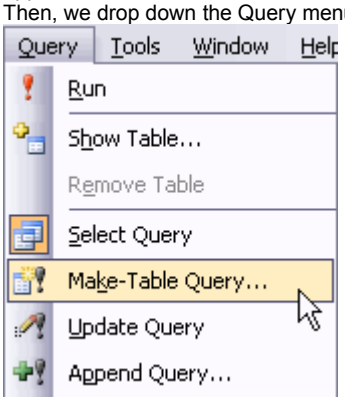
Unit 10 . Action queries (I)

Action queries are queries that permit us in just one operation to perform changes on one o various rows in a table. With these queries we can create a new table including in it the records of another, change the data stored, insert new records or erase old

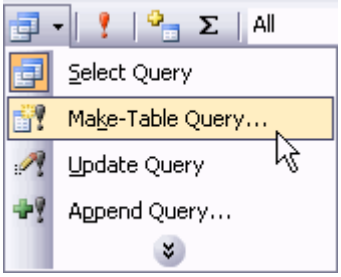
records.
Either way, before making the modification effective a dialogue box appears to confirm the operation, giving us the opportunity to cancel. These messages can be unshowned, if you want to know how click here .
Depending on what the query performs, there are fout types of queries:
Make-Table queries
Update queries
Append queries
Delete queries
Next we will explain each type of action query to you.

Make-Table queries.

A Make-Table query creates a new table with the records stored in one or more tables.
They are usually used to create working tables (we create it for a determine task, for example to store the results of a complex query that is taking long to execute and that we will use in various reports, and when we are finished with the task we erase it).
They can also be usefull to create export tables (extract data from a table to send it to someone or to make copies of our tables).
And finally they are used to create history tables.
To create a Make-Table query:
Open a new query in design view.
We add one or more tables from where we are going to extract the data to save in our new table.
We design the query in the same way as a normal selection query, so that only the records we want to save in the new table will appear.
Then, we drop down the Query menu and select the Make-Table Query... option.



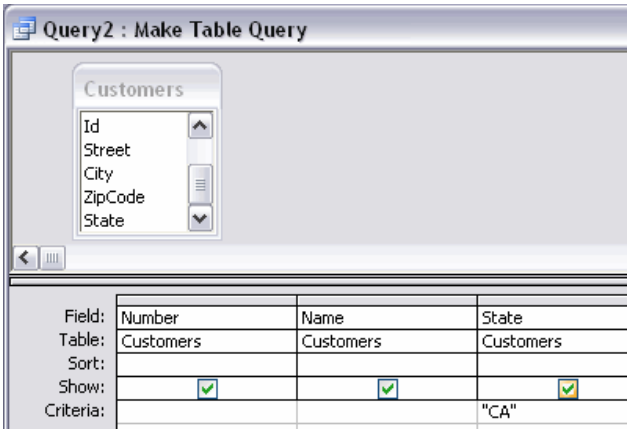
or,
we can drop down the list from the button on the toolbar and select the Make-Table Query... option.



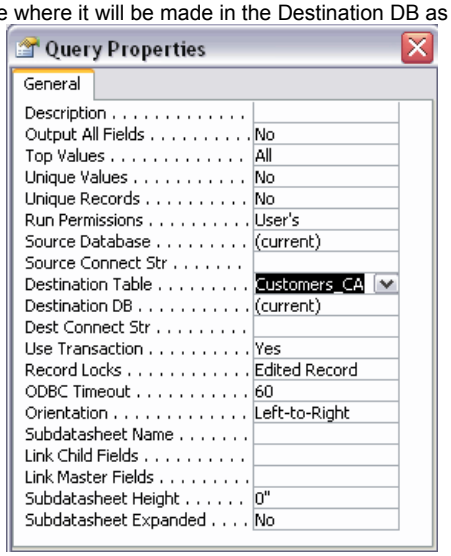
The Make table dialogue appears:



We type the name of the new table in Table Name: box.
We normally create the table in the same database (Current database option) but we can create it in another database, and in this case we will need to check the Another database: option and type the name of the database where the table should be made in the File Name: box. It needs to be the complete name including the complete path, and therefore it is easier looking for the database using the Browse... button; click on it and search for the database where we want to save the new table.
Finally, click on the OK button and we return to the Query design:



The design window is the same as that of a selection query, and in it we define the selection query in order to obtain the data to be saved in the new table. The only difference is that on the title bar, after query name, we can see the words Make Table Query and if we open the query properties by clicking on the button on the toolbar we will see the name of the table to create in the Destination table property and the database where it will be made in the Destination DB as we can see below:



To see the data that will be stored in the new table, before create it, click on the Datasheet view type on the toolbar or drop down the View menu and select the Datasheet view option. This option allows us to visualize the data without creating the new table to make sure they are the correct data.

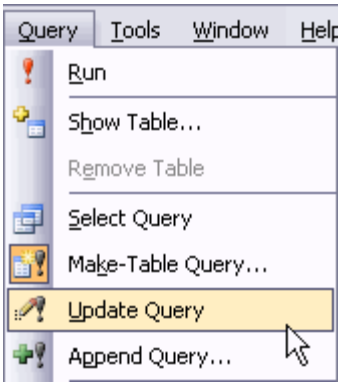
The Run query option makes it so that the new table is made with the data obtained from the query. To run the query click on the button or drop down the Query menu and select the Run option.
When we run a make-table query we are advised of this, and we are also advised when a table already exists with the same name as the new one.
The fields in the new table are named as the headers of the query fields, and inherit the same data type as the source fields but they do not inherit the properties such as the primary key, indexes, etc...

To practice you can perform Step by step exercise in creating make-table queries

Unit 10 . Action queries (II)

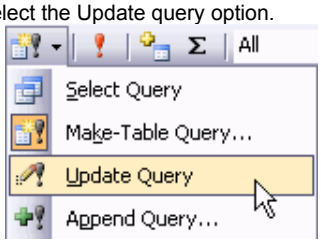
Update queries.

Update queries allow us to modify the data stored in a table. In only one operation, all the records can be changed at the same time, or only those that comply with a determined condition.
To create an Update query:
We open a new query in design view.
We add the table that we would like to update.
We drop down the Query menu and select the Update query option.

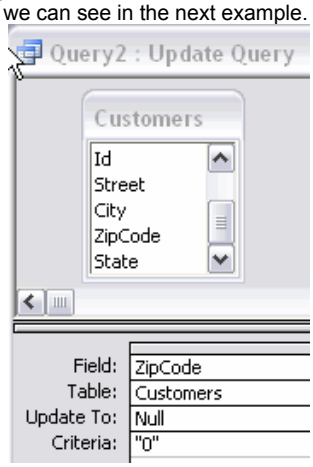


or,

drop down the  button on the toolbar and select the Update query option.



As from this moment the QBE grid changes its appearance, the Sort: and Show: rows have disappeared for lack of significance here and have been replaced by the Update to: row as we can see in the next example.



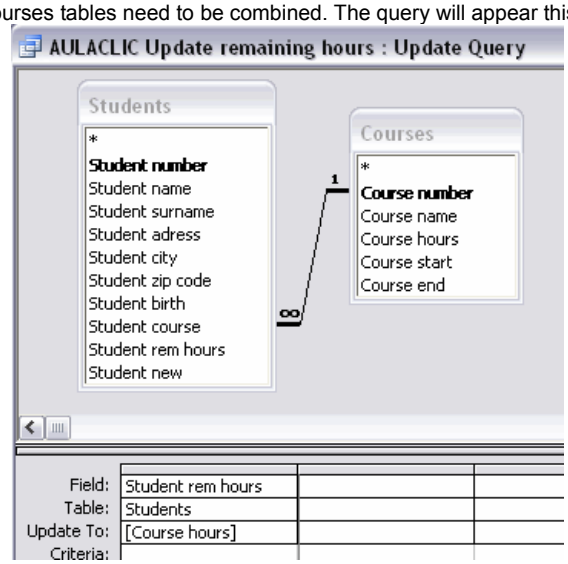
- The source of the query could be a table, a query, or a combination of tables.
- In the QBE box we only put the field or fields that intervene in the search criteria and those fields that we want to update.
- In the Update to: row we write the expression that calculates the new value to assign to the field.

The expression could be a fixed value, the name of a source field, or any expression based on the source fields, it could also be a parameter.
This expression should generate a value of the appropriate data type for the indicated column.
The expression needs to be calculable from the values of the row that it is updating.

- If the column being updated is used in the expression for the calculation, the value used is the one before the updating, the same as for the search criteria.
- For the update to affect a part of the records in the table, we need to select the records to update by means of a search criteria. If the query does not contain a search criteria all the records in the table will be updated. In our case we have included the Zipcode = 0 search criteria, and in the Update to: row of the Zipcode field we have type null, which means that the zipcode field will be updated to the null value in those records where it is to zero.
- If we update a defined column as part of a relationship, this column can or cannot be updated depending on the referential integrity rules (see Unit 6).
- In order to be able to view the data being edited before performing the update we can click on the Design view button  on the toolbar or drop down the View menu and select the Datasheet view option.
- To run the query click on the  button or drop down the Queries menu and select the Run option. When we run the query the changes are performed on the table.
- When the value to leave in the field that we are updating is a fixed value, we put it in the Update to: row with nothing more, Access will add inverted commas if the field is text type or # # if the field is date type.
- When the value to leave in the field that we are updating is contained in a field of this same table we need to put the name of the field between brackets [] so that Access does not confuse it with a fixed value and add inverted commas to it. Lets suppose that we have added a new State field to the table to store the state of each student, and as most of the students live in the capital of the State we want to create a query to fill the State field with location of each student, and later we can manually change those few

students who do not coincide with the state.
In the query to create we will need to put [City] between brackets in the state column and the Update to: row so that Access understands that it must get the value from from the City field.
In the Update to: row we can also use an expression based on the field that we are updating or on another field being updated in this query. In these cases the values before the update are used to calculate the expression. E.g if we want to raise the price of our articles by 5%, the expression to type in the Update to: row of the price field will be [price]* 1.05 (this expression is the equivalent of [price] + ([price] * 10/100))

When the value we use is found in another table we need to define the source of the query in such a way that every source row contains the field to update, and the field that contains the value to use for the update. E.g lets suppose that we have added a Residual hours field to the Students table to save the number of hours that each student has left on his/her course. We can create a query to update this field with the hours as we can presume that at the beginning the number of horus left is the same the total hours. In this case the query source needs to contain the residual hours and the hours fields of the course in which the student is recorded. For this reason the Students and Courses tables need to be combined. The query will appear this way:

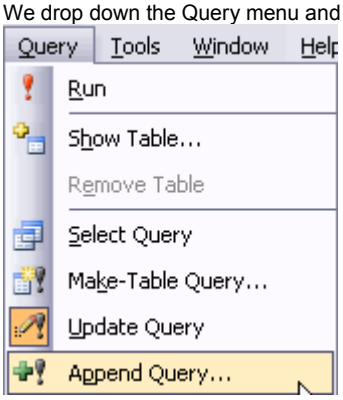


To practice you can perform the Step by step creating update queries.

Unit 10 . Action queries (III)

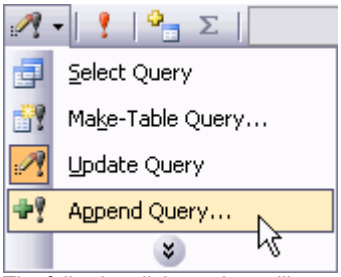
Append queries.

Append queries are those queries that add whole rows to a table.
The new records are added at the end of the table.
We can insert one row or various rows at the same time, normally getting the data from another table, and so an append query has a source (the table or tables where it gets the data from) and a destiny (the table where we will insert the data). The mechanism is similar to that of a make-table query in so far as we define a selection query which permits us to obtain the data to save, and what does vary is that now we have to indicate into which column we want to save every value.
To create an Append query:
We open a new query in design view.
We add the table or tables that we want to extract the data from to store in the destination.
We design the query as we would a normal selection query, in such a way that the data to insert will appear in the result of this query.
We drop down the Query menu and select the Append query... option.

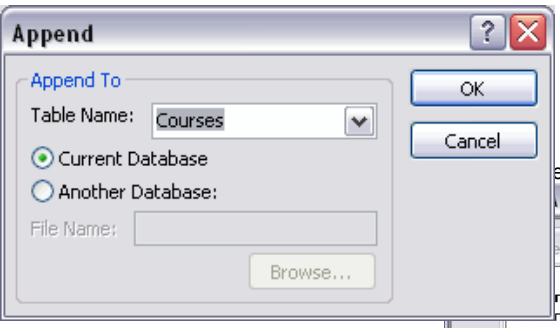


or,

drop down the menu on the toolbar and select the Append query... option.

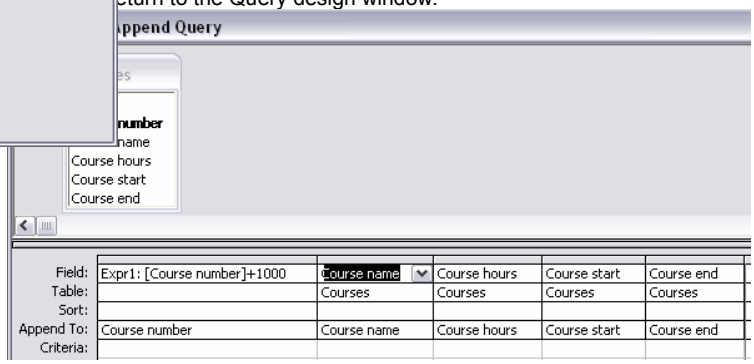


The following dialogue box will appear:



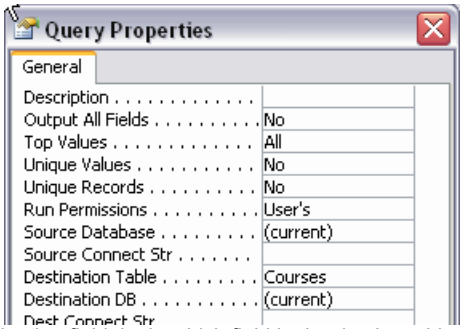
We type the Table Name where we want to insert the new data to.
The table will normally be in the same database (Current database option) but we can have the table in another database, but for this we need to select the Another database: option and type the name of the database in the File name: box where the table is to be found. It is easier to look for the database with the Browse... button. click on Browse... and the dialogue box will appear to look for the database.

eturn to the Query design window.



The design window will be similar to a selection query, here we define the selection query with which to obtain the data to save in the new table, the only difference is that it has a new Append to: row.

If we open the query properties by clicking on the  button on the toolbar we will see the name of the destiny table in the Destination table property and in the Destination DB we see the database where the destiny table is to be found.

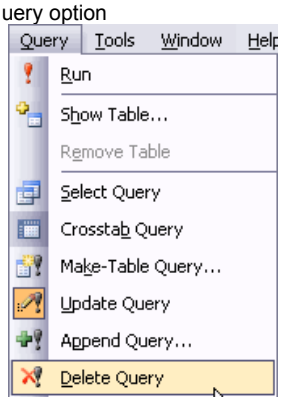


In the Append to: row we indicate the destination field, i.e in which field in the destiny table we want to leave the value defined in this column.
In the Field: row we indicate the value that we want saved in the destiny field, this value could be a source field, a fixed value, or any valid expression.
We can also include a search criteria in order to select the source records that will be inserted into the table.
When we do not fill in a destiny field, it is filled in with the Default value. In our example nothing is appended to the Start date and Finish date fields as they will be filled in with null (their default value).
When the column has a Autonumber type, we do not normally assign a value to this column so that the system assigns it a value pursuant to the counter, if though we do want a concrete value, we indicate this in the Field: row.
If the destiny table has a primary key and and we try to not assign a value to this field, assign the null value, or a value that already exists in the table, Access will not add the row and you will receive a key infraction error message. For this reason in our example, we will assign the Course code field the value of the [Course code] + 1000 expression so that it does not generate duplicate codes which could produce problems (supposing that the codes in our course table do not reach 1000).
If we have an unique index defined (without duplicates) and we try to assign a value that already exists in the table we will also receive an error message.
If the destination table is related to another, the referential integrity rules will be followed.

To practice you can perform Step by step creating append queries.

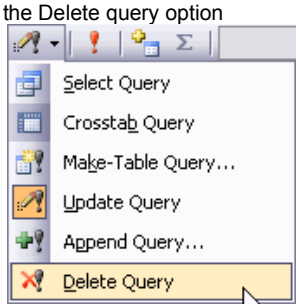
Delete queries

Delete queries are queries that remove records from a table.
To create a delete query:
Open a new query in design view.
Add the table from which we want to delete records.
Drop down the Query menu and select the Delete query option



or,

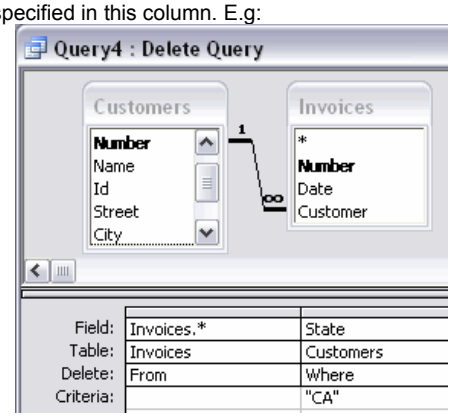
click on the  button on the toolbar and select the Delete query option



As from this moment the box changes its aspect, the Show: and Sort: rows have disappeared due to lack of significance here, and in their place the Delete: row has appeared as we see in the next example:



The source of the query can be a table, a query, or a combination of tables. A combination of tables is used when we need to delete records from one table but need the other table for the search criteria.
In the QBE box we only put the field or fields that intervene in the search criteria, and if the query has various source tables, we will put one column to indicate from which table we want to delete the records.
In the Delete: row we can select two options, the Where option indicates a search criteria, and the From option indicates that we want to delete the records from the table specified in this column. E.g:



In this query we delete the invoices (From Invoices) of the clients from California (Where State = "CA").
When the source is only one table the From column is not necessary.
If no search criteria is indicated, ALL the records are erased from the table.

To see the data being deleted before it is deleted we can click on the Datasheet view option on the toolbar, or drop down the View menu and select the Datasheet view option.

To run the query click on the button or drop down the Query menu and select the Run option. On running the query the query deletion from the table is performed although we are advised before that the rows are to be deleted and we can cancel the operation. Once deleted, the records can not be recuperated.
If the table where we are deleting is related to other tables, the records can be erased from them too depending on the referential integrity rules defined in these relationships. If Access is not able to delete all the records it was supposed to, we will be sent a message advising us that it was not able to as these rules are being infringed on.

To practice you can perform Step by step creating delete queries

Unit 10 exercise. Action queries

If Access is not open, open it in order to be able to carry out the following exercises.

Exercise 1: Distributer

Open the Cars database.
1 Create the Create Ford services query that will generate a new table named Ford services and will contain the records of the Services carried out on Ford cars.
2 Create an Increase price query that will permit the price of all Ford cars to increase by 5%.
3 Create a Delete Ford services query that will delete all records of Services carried out on Ford cars.
4 Create a Recover services query that will recover the records deleted in the previous query from the table that we created in part 1.

Exercise 2: Clinic

Open the Clinic database.
1 Create a Create non admitted patients that will generate a new table named Non admitted patients and will contain the records of the Patients that are not in the Entries table.
2 Create a Change room query to change the patients from room 504 to room 505.
3 Create a Create room 201 query that will generate a new table named Rooms 201 and will contain the records of the Entries in room number: 201.
4 Create a Delete entries that will delete the Entries in room number 201.
5 Create a Recover entries query to recover the records deleted in the previous query.

If you are unsure of how to perform any of the previous exercises, we will explain them to you Here.

Unit 10 evaluation test. Action queries

Top of Form
There is only one correct answer to each question. Click on the answer you consider to be correct.
Answer all the questions and press the Revise button to see the results.
If you press Reset you will be able to repeat the evaluation.

1. In a Delete query I can group the records.
 a) True.

 b) False.

2. To run an action query we can use the  or the .
 a) True.

 b) False.
3. We can have various source tables in an action query.
 a) True.

 b) False.

4. I can update a field with a value found in another table.
 a) True.

 b) False.
5. A Delete query without criteria will delete only the first record from the query source.
 a) True.

 b) False.

6. The  button serves to ...
 a) ...open the help menu.

 b) ...add a Total: row to the query.

 c) ...run the query.
7. In an Update query I can put a criteria...
 a) ...to indicate the rows that need to be updated.

 b) ...I can not put any criteria.

 c) ...to indicate the columns that need to be updated.
8. In an Update query various columns can be updated.
 a) Yes.

 b) Always and when the column is not being used to update another.

 c) You can not update various columns.

9. I want to introduce records into a table that does not exist.
 a) Define an Append query.

 b) Define a Make-table query.

 c) Define an action query.

 d) All three answers are false.

10. In an Append query...
 a) ..put the table that contains the values to insert in the table zone.

 b) ...I can put nothing in the table zone if the values to insert are fixed.

 c) Both answers are valid..

Bottom of Form